Occupational violence risk for precariously employed adolescents: multiple vulnerabilities to multiple risk factors

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Abstract

Over the past decade there has been an escalating debate about the extent to which labour process factors increase vulnerability to occupational safety and health hazards and risks. Included in this debate are the following issues: the extent to which precariously employed workers have restricted access to preventive information; the mechanisms by which contractors/subcontractors are economically encouraged to work excessively long shifts; and the restrictions that are placed formally or informally on access to preventive training. At the same time there has been a quite separate debate within agencies of the United Nations about the negative health and safety consequences associated with the employment of children and adolescents. Further, in an entirely different arena, debate has focused on identification of the risks of occupational violence. To date, these debates about hazard and risk exposures have been evaluated in distinct scientific studies with separate analyses of exposures, at-risk working populations and employment categories. In this paper, these separate debates are drawn together.

The central focus of the paper is identification of the risk of exposure to occupational violence among adolescent workers in industrialised countries. The discussion begins with a brief review of the health and safety risks associated with precarious employment in general. This is followed by an assessment of the extent to which adolescents participate in the labour force and an outline of the particular risks faced by teenage workers. Empirical evidence is then presented from a series of occupational violence studies conducted in a range of different industry sectors, and some arguments about incidence patterns and vulnerabilities published in an earlier issue of this journal[1] are developed further to focus more tightly on adolescent workers.

The author argues that the probability of experiencing an occupational violence event is increased when workers are adolescent, precariously employed, inexperienced in the workforce, and employed in service sector jobs that require significant amounts of face-to-face contact with customers – particularly if these job tasks require the exchange of money for goods and services. However, if adolescents are working illegally, informally in family businesses or formally in casual positions that are very precarious, occupational violence is unlikely to be reported or recorded, and hence preventive interventions are unlikely. The author concludes by examining a range of policy approaches that can be adopted to reduce the risks of occupational violence and to enhance the implementation of preventive interventions that may help protect adolescent workers.

Key words

Adolescent workers, multiple risk factors, occupational violence, precarious employment, small business

Introduction

There has been a series of debates about the occupational safety and health (OSH) risks associated with precarious employment in its various forms (including subcontracting, casualisation of the labour force, and outsourcing more generally). A quite separate debate has emerged, predominantly within criminology literature, about the risks of exposure to violence at work, such as during the course of an armed hold-up. At the United Nations/International Labour Organisation (UN/ILO) international policy level, quite separate discussions have revolved around mechanisms by which child and adolescent workers can be protected from exploitation in dangerous jobs. This paper attempts to bring together these distinct debates through an examination of job task scenarios where employed adolescents in industrialised countries are exposed to multiple risk factors, ie where precarious employment, inexperienced young workers and occupational violence risks are all present. Before examining the scientific empirical evidence, a brief review of some background labour process risk factors is provided.

Precarious employment and OSH

Precarious employment usually includes jobs that are casual, part-time, short term, contract/subcontract, day-hire labour or carried out in small scale owner/operator firms.[2–4] Precariously employed workers normally have limited entitlement to holiday pay, sick leave, severance pay or protection against summary dismissal. Such workers generally accept precarious employment because they have few alternatives, limited skills, restricted bargaining power, or because their lifestyle or family responsibilities require flexibility.[5] In a few industry sectors, precarious employment in the form of subcontracting has become the norm across industrialised countries, eg in housing construction in Australia. Nevertheless, the extent of precarious employment varies across industrialised countries, with Australia and Spain experiencing the highest levels among OECD countries. As Campbell & Burgess[6] report, temporary employment in Spain is now 32.9 per cent of all workers, followed by 26.4 per cent in Australia.

A series of studies has revealed that, overall, the OSH indices of precariously employed workers are far poorer than among workers hired on a permanent basis.[7–9] There are a number of explanations, including:

- precarious employment is disproportionately concentrated in more hazardous industry sectors
- precariously employed workers paid on a piecework basis are under more intense productivity pressures, and at times may work at too fast a rate or for excessive periods of time without taking a break
- precariously employed workers may be more vulnerable to exploitative arrangements (eg not provided with appropriate protective equipment or a safe system of work[10,11]) because of their weak bargaining position in the labour market
- precariously employed workers, overall, experience an increased incidence of occupational violence events.[12]

However, for a range of reasons, this poorer OSH status is rarely obvious. Almost inevitably, there is diminished formal reporting of the work-related injuries/illnesses in official workers' compensation claims databases due to structural barriers. For example, precariously employed workers are generally unaware of entitlements, may fear the loss of future jobs/contracts if they report an injury or violent event, and – at least in Australia – self-employed workers and subcontractors have restricted access to workers' compensation insurance cover.[13–16] As a result, data about the occupational violence and other negative OSH experiences of precariously employed workers remain largely hidden. Similarly, data relating to child and adolescent labour are also poorly collated.

Children and adolescents in the labour market

While there are variations in accepted definitions across nation states, the ILO and the World Health Organisation (WHO) agree that 'child labour' is work performed before the age of 15. Because international data – and comparability capacity – have historically been poor, the ILO initiated a series of country case studies, including ones from Portugal, South Africa and Cambodia. These case studies, together with other research projects, have assisted with highlighting the prevalence of child and adolescent labour. A detailed exposition of these employment patterns is beyond the scope of this paper, although a brief overview is provided below.

In recent reports, the ILO estimated that 8.4 million children work in the 'worst forms of labour', including as slaves, in prostitution and pornography, drug trafficking, or forced to participate in armed conflict. A further 179 million work in hazardous jobs such as construction, deep-sea diving and fishing, and mining.[17,18] The majority (but not all) of children working in these highly dangerous jobs were reported to be living in developing countries, eg as rug weavers in the Middle East, underground tin miners in South America, in the sex industry in Cambodia, and in the manufacture of fireworks, glass blowing, and agricultural activities across a number of nation states.[19,20] Poverty was identified as the primary determinant.[21,22]

In industrialised nations, widespread employment of children under the age of 15 has disappeared, although it was endemic in Britain during the Industrial Revolution, resulting in long hours of labour, very low pay, dangerous tasks and the mutilation and death of many.[23–25] It could be argued that the economic stressors that led to widespread child labour during the Industrial Revolution are similar to those in some developing countries today.

Arguably, the employment of *adolescents* has become the norm in industrialised countries, with most teenagers working on a part-time basis, often in conjunction with full-time education. The USA has the largest proportion of children and adolescents legally employed.[26] Informal employment is also rife, with at least 11 per cent of 15-year-olds in the USA working in prohibited jobs.[27,28] Adolescent labour is characteristically part-time and seasonal, with working hours increasing substantially during summer holidays, and decreasing during school terms.[29,30] A rule of thumb is that 16 to 17-year-olds work half time for six months of the year; thus, full-time equivalents are approximately one quarter of the total number employed.[31]

The general pattern of adolescent employment in industrialised countries can be summarised as follows:

- the employment of adolescents over the age of 15 is common in both the formal and informal sectors, eg in fast-food outlets, babysitting, or as casual labour on family farms
- more adolescents are working and they are working for longer hours than a decade ago
- many work late in the evening. Because many service sector businesses are open from 5am till midnight, many adolescents now work in the early morning or late at night in fast-food, video hire and other service outlets. In contrast, two decades ago adolescents generally worked on Saturdays or after school hours
- a resurgence of adolescent labour in the USA has been associated with an increase in the proportion of 'working poor', poverty, a growing pool of illegal immigrants and limited enforcement of labour laws among young people[32]
- many parents believe that the legal employment of adolescents is a 'good' thing as it strengthens the 'work ethic', provides income, enhances future employment, provides experience of the 'real' world and boosts self-discipline[33]

- in a few cases, part-time employment provides adolescents with their sole source of income to pay for food and shelter
- in Australia, the proportion of working adolescents has increased markedly over the past two decades due to a sharp increase in combined part-time work and full-time study, and an increase in school retention and university participation ratios. For example, Campbell & Burgess[34] and Burgess & Campbell[35] estimate that at least 60 per cent of 15 to 19-year-olds hold casual jobs, compared with 29.8 per cent in 1984
- the precariously employed adolescent labour force is increased by backpackers holding working visas and employed in fruit-picking, tourism and hospitality work.[36]

These adolescents are exposed to a range of OSH hazards.

The risk exposures and OSH consequences for adolescent workers

The available data indicate that the OSH risks faced by all workers are dependent, to a significant extent, on the industry of employment and the hazards to which they are exposed.[37] While evidence about adolescent work-related injuries, illnesses and fatalities is fragmentary, the available data indicate an increased injury ratio when compared with adults.[38,39] For example, Miller & Kaufman[40] estimate that 19.4 per cent of 16 and 17-year-old workers are injured over a given time span compared with 10.6 per cent of adults performing similar tasks. Similarly, Massachusetts Medical Society[41] estimates that 96 per cent of adolescent injuries occurred to teenagers aged 16 to 17.

In the USA, farming and construction work poses significantly higher fatality risks for adolescent workers.[42] Many of the workplaces are family businesses.

In Australia, examination of coronial records is instructive in identifying the extent of risk for young workers. It has been reported that 5.8 per cent of all traumatic workplace deaths occurred to people under the age of 20; many were children.[43] The vast majority of these fatalities occurred to males; two-thirds were working on family farms; and 50 per cent involved vehicles. Overall, researchers estimate that 63.5 per cent of those fatally injured were workers, 24 per cent were bystanders and 12 per cent were 'others'.[44] By extrapolation from the data, it was identified that many were non-working children and adolescents, exposed because farms are both a home and a workplace. However, the extent of non-fatal work-related injuries/illnesses of children and adolescents is less well understood.

The overall level of OSH risk appears to be influenced by the following factors:

- all young workers are to some extent inexperienced
- equipment used by adolescents may have been designed for adults
- metabolic differences between adults and adolescents may result in adolescents experiencing increased absorption of chemicals
- as with adults, the gender division of labour may result in adolescent boys being concentrated in higher-risk jobs
- older adolescents may be involved in more hazardous work or operate more dangerous equipment
- older adolescents may be subject to less supervision than younger teenagers
- older adolescents may be on the job for longer periods of time than younger teens
- precariously employed adolescents may have had less training than permanent workers
- older adolescents may be more willing to report their hazard and risk exposures, and injuries[45]

- there may be a 'healthy worker' effect as injured adolescents leave and the uninjured remain[46]
- precariously employed adolescents are concentrated in retail and service jobs, which may result in disproportionate exposure to the hazard of occupational violence, eg brawls near hotels and bottle shops, or hold-ups in fast food and video outlets and 'corner' stores.[47–51]

When it comes to work-related injuries and illnesses of adolescents, under-reporting is likely to be rife, due to the following:

- the fear of potential consequences following formal reporting
- ignorance of entitlements to medical care or workers' compensation insurance benefits
- limited diagnoses of work-related illnesses, particularly those with a long latency
- adolescent workers are first and foremost students, therefore their status as a 'worker' may remain unrecorded, eg in hospital emergency departments.

Hence the majority of adolescent work-related injuries and illnesses remain unidentified. For example, in Sweden it is estimated that 75 per cent of adolescent injuries go unreported.[52]

Thus far in this paper, the general labour market and OSH risks faced by adolescent workers have been identified. Now more specific evidence about exposure to occupational violence is provided.

Exposure to occupational violence

Among OSH professionals working in industrialised countries, there has been a groundswell of interest in occupational violence. Predictably, different authorities define occupational violence in distinct ways and this has consequences for estimating incidence and severity ratios, sanctioning of perpetrators following aggression, as well as on the likelihood of preventive interventions being implemented.[53] The ILO recently finalised a code of practice which defined occupational violence as:[54]

> Any action, incident or behaviour that departs from reasonable conduct in which a person is assaulted, threatened, harmed, injured in the course of, or as a direct result of, his or her work.

Other bodies define violence at work more broadly, and explicitly include behaviours that may result in a non-physical or 'emotional' injury:[55]

> Occupational violence is the attempted or actual exercise by a person of any force so as to cause injury to a worker, including any threatening statement or behaviour which gives a worker reasonable cause to believe he or she is at risk.

Aggressive behaviours that may be encompassed in such broader definitions of workplace violence include: threats, verbal abuse, spitting, pinching, groping, behaviours that create an environment of fear, stalking, bullying among workers or between managers and workers, and initiation rites.[56,57] Notably, many of these 'emotional-threat' events are not currently included in criminal codes.

Thus, when estimations of occupational violence are being calculated for any given industry sector or occupational group, it is important to:

- identify the definition of occupational violence that has been adopted
- distinguish the incidence of such events (eg number of cases per year in a given population) from the severity (ie the seriousness of an event).

Overall, the available international data indicate that the incidence of occupational violence varies across countries.[58,59] For example, homicides at work are relatively infrequent in Britain and Australia (where fewer than 3 per cent of traumatic occupational fatalities are due to violence) compared to the USA (where about one in every six workplace injury deaths is a homicide).[60–62]

The risk of experiencing a violent event at work also varies markedly between occupational groups and industry sectors. Essentially, these variations are the result of differential exposure to the hazard. The criminological and OSH evidence indicate that the risk is significantly higher in jobs where cash or valuable goods are on hand, and where workers have substantial face-to-face contact with clients/customers.[63–66] Taxi drivers, for example, are at increased risk because these two core risk factors are part and parcel of daily work tasks. In contrast, office-based workers who have very limited contact with 'outsiders' are at very low risk. As a baseline, European workers in public administration (9 per cent), hotels and restaurants (8 per cent), real estate (5 per cent), and transport and communications (4 per cent) experienced physical violence in the 12 months prior to a recent survey.[67] In Britain, police officers, health workers and social welfare staff are at greater risk of an assault.[68] In the USA, retail trade, law enforcement, teachers and healthcare workers are at highest risk.[69–71] In Australia, collation of all sources of occupational violence data has not occurred and the information remains split between different bodies, including the criminal justice systems in the different states and territories, the OSH authorities, and individual organisations.

As a result of the differential exposure to risk factors, occupational violence is a common experience in some jobs, rare in others, and in epidemic proportions in a few where the risk factors are endemic. Thus, adolescent worker exposure to occupational violence is essentially pre-determined by job-specific risks.

Empirical research studies

Extensive empirical studies are probably the only reliable way to estimate the extent of occupational violence and other OSH risk exposures among adolescents. Data gathered during a series of scientific studies are summarised below.

Adolescent fast-food workers with formal employment contracts

An empirical study was conducted that involved face-to-face interviews with 304 randomly selected employees working in 132 different outlets of a multinational fast-food chain across three different Australian states.[72] In total, 83 per cent of interviewees were adolescents and 71 per cent were precariously employed; all were legally employed. The adolescents were exposed to a range of OSH hazards and risks. The main findings of the study were as follows:

- minor burns and cuts were common among adolescents working in kitchen areas, although these rarely resulted in time off work[73]
- slips, trips and falls in kitchens or manual handling activities preceded most of the injuries that required time off work
- gender was not correlated with injury patterns, undoubtedly because job tasks were not segregated on this basis
- low-level violence in the form of verbal abuse from customers was very common (48 per cent), although the incidence of threats (8 per cent) and physical assault or hold-ups was minimal (2 per cent)
- using the loss of five or more days off work as the basis for incidence estimations (the basis for national workers' compensation figures), the annual injury incidence was estimated to be

> 2.3 per cent. This incidence ratio closely matched the all-worker average across this industry sector.[74]

The primary author of the study concluded that the superior OSH performance in this fast-food chain resulted from the stringent OSH management system (OSHMS), which required prevention strategies (including for occupational violence) to be integrated across all production tasks, and which was enforced across all staff in both company-owned and franchised outlets.[75]

The main lesson to be learned from the study is that by employing a robust OSHMS, the risks faced by formally employed adolescent workers can be significantly reduced. In contrast, *informal* employment presents quite different challenges.

Adolescents informally employed in family market gardening businesses

Market gardening typically flourishes on the outskirts of large cities, is frequently based on a family business structure, may involve migrants from rural backgrounds, and can absorb all family members at harvest time when labour requirements increase rapidly. Parker[76] conducted a substantive empirical study in this industry in the outer Sydney (Australia) region; many of her interviewees were migrants. She identified a range of family members who were exposed to physical and chemical hazards (including organophosphate pesticides); infants brought onto fields when childcare was not available; children and adolescents working alongside parents; and pregnant women working in the fields. As one interviewee stated:[77]

> I sprayed until I was 6 months pregnant … I started again immediately after the baby was born. We put the children in the car, and covered the car. When the babies were older we left them with the younger sister, who left school to look after them.

The vulnerability of these child and adolescent workers may be exacerbated where their families are under stringent financial pressures, the parents themselves are precariously employed, there are very few alternative employment options, English language capacity is limited (so protective controls are poorly understood), or if adults are unaware of the potential for acute and long-latency adverse outcomes. However, no official record of such exposures is likely to exist, except when negative OSH consequences require attention from a medical practitioner or hospital emergency department. Further, no unequivocal evidence could be identified in the research literature that focused specifically on the occupational violence experiences of adolescent workers involved in market gardening.

Adolescents informally employed as outworkers in clothing manufacture

The manufacture of clothing in domestic premises (commonly known as 'outworking') was long thought to be an anachronism from the early Industrial Revolution that had died out in industrialised countries. However, outworking is resurgent across Britain, Australia, the USA and Canada, typically in towns where unemployment levels are high, in pockets of poverty, and/or in migrant communities. These 'outworkers' are disproportionately female, precariously employed, paid on a piecework basis, hired through complicated chains of subcontracting, and may draw in all members of a family, including children.

One Australian study, involving face-to-face interviews, compared the OSH of 100 factory-based clothing manufacture employees against 100 clothing outworkers completing similar job tasks. With the assistance of interpreters, both qualitative and quantitative data were gathered about their OSH status. The data revealed that the types of injury were similar across both factory-based workers and outworkers, although the incidence and the severity of injuries experienced

by outworkers was approximately three times greater than those employed under formal factory-based contracts.[78] The clothing outworkers also experienced far more occupational violence (49 per cent abused, 23 per cent threatened and 7 per cent assaulted) over a 12-month period than their factory-based counterparts (4 per cent, 1 per cent and 1 per cent, respectively).

Of crucial import for this paper, the evidence revealed that in at least three of the homes where the author conducted interviews with outworkers, children were seen to be working on machining and other clothing manufacture tasks. During the course of interviewing adult outworkers in their homes, the author also witnessed several other children caring for younger siblings and babies, and completing housework and cooking tasks. During the garment manufacturing processes, child and adolescent workers – as well as the other children present – were exposed to hazards, including mechanical equipment in kitchens and other rooms not primarily designed for production, dusts and some chemicals. Comments such as the following were typical: 'acid smell … and dusty'; 'started sewing as an outworker when I was 13'; '… I started in 1987, aged 7…'

In such domestic environments, no formal record about any negative OSH outcomes is likely to exist. Further, evidence was gathered on extensive exploitation of the outworkers, including aggression perpetrated by 'middlemen' (who were generally from the same ethnic community and frequently held some power within the language group). While no unequivocal evidence was provided about aggression directed at the children/adolescents in outworker homes, it is unlikely that they were immune from these pressures and threats.

In sum, unequivocal data about the risk of exposure to occupational violence for adolescent workers as a whole are not available. Hence, extrapolations must be made from existing secondary sources coupled with the qualitative and quantitative data from extant empirical studies.

Identifying patterns of occupational violence in different jobs

In Australia, the author co-ordinated a series of empirical studies commissioned for a range of OSH research purposes. These research studies were conducted in different industry sectors and utilised representative samples of working populations, and involved a number of colleagues. OSH information collected in all these studies included exposure to hazards and risks over the 12 months prior to a face-to-face interview, injuries and illnesses experienced as a consequence, perceptions about cause–effect relationships, as well as exposure to various forms of occupational violence. Where possible, data collected from workers under the age of 21 were extracted.

The data provided in Table 1 are complex. Space and word length limitations prohibit a detailed discussion of all these studies, and interested readers are directed to a more detailed account of patterns of occupational violence provided elsewhere.[88] Further, only one of these studies focused specifically on adolescent workers; hence, care must be taken with age-specific extrapolations.

Briefly, the data shown in Table 1 indicate that:

- there are marked differences in patterns of occupational violence across different occupational groups and industry sectors. That is, the risk of victimisation at work is not homogeneous. Arguably, these variations are due to differential exposure to risk
- while verbal abuse and threats were common experiences in many jobs, the majority of events involved no physical attack. Assaults on-the-job were most commonly experienced by juvenile detention and health workers

- jobs with close face-to-face contact between workers and customers appear to be at increased risk, ie taxi, healthcare and juvenile detention occupations
- jobs where a significant proportion of the workforce is precariously employed appear to have a higher incidence of occupational violence, eg taxi, fast-food, juvenile detention and seafaring

	% under age 21	% precarious employment*	Verbal abuse	Threats	Assault/ hold-up	Bullying	Other aggression	Total victimised (%)
Juvenile detention (n=50)[79]	0	46	68	36	17	12	13	76
Tertiary education (n=100)[80]	1	3	50	39	1	65	25	80
Healthcare (n=400)[81]	1	13	67	33	12	10.5	11	67
Seafaring (n=108)[82]	4	43	19	5.5	1	†	1	27
Long-haul transport (n=300)[83]	0	39	33	8	1	†	21‡	47
Fast-food (n=304)[84]	83	71	48	8	2	†	2	48
Clothing manufacture (n=200)[85]	1	55.5	53	24	8	†	–	55
Taxi (n=100)[86]	3	91	81	17	10	†	–	81
Small business (n=248)[87]	0	100	39	9	1	†	–	40

Table 1
Empirical OSH studies involving 1,810 workers in several industry sectors, showing young worker proportions, the level of precarious employment, and proportions of interviewees who experienced forms of occupational violence in previous 12 months (% of all interviewees)

*In calculating the 'precarious' proportions, casuals, agency workers, the self-employed and part-time workers who did not hold permanent status were included. The micro small business owner/managers with fewer than five employees have also been included as precariously employed. The tertiary education workers were a self-selected sample that had probably been victimised disproportionately through bullying. (The 65 per cent bullied in the tertiary education study includes those who cited 'treated unfairly' (65 per cent), 'denigration' (58 per cent) or 'unreasonable work practices' (47 per cent).)

†Bullying could not be separated out in the fast-food, seafaring, transport, clothing manufacture, small business or taxi studies.

‡The 'other' category in the long-haul transport study was predominantly road violence/road rage.

- many of the occupational groups/industry sectors examined are difficult for adolescent workers to access because of qualification prerequisites or extensive financial set-up cost barriers. Hence, the interviewees (while randomly selected) represented those workers who had already achieved the qualification and/or financial resources to enter the job
- the fast-food industry study was the only study where the vast majority of the workforce was under age 21
- there were limited indications that adolescent workers are at greater risk than adults. For example, in the health study cited above, 2.5 per cent of ambulance officers interviewed were under age 21 but they experienced 4.8 per cent of violent events. (No medical officers, nurses or allied health workers were aged under 21.)

Thus, although no multiple-industry, widespread and unambiguous evidence on the exposure of adolescent workers to occupational violence is available, the risk factors and probability patterns across industry sectors are clear. After examining all the data in all the studies co-ordinated by the author, it is argued that exposure to job-specific risk factors is the primary determinant of the occupational violence experienced by adolescent workers; that is, the extent of close contact with clients/customers and amount of cash/valuables on hand that may increase the risk of a hold-up. Of central importance to the focus of this paper, adolescent workers are concentrated in service-sector jobs, the majority of which require face-to-face contact with clients.

Putting the data jigsaw together to assess the risk of occupational violence for adolescent workers

When the extant research data from the distinct OSH areas discussed above are collated (precarious employment, child labour and occupational violence), a series of risk factors becomes evident.

First, it is clear that formal employment of children is rare in industrialised countries. However, the employment of adolescents is widespread, although concentrated in particular jobs.

Second, the majority of the jobs occupied by working adolescents are part-time or casual, often held in conjunction with full-time education at school, university or technical college. Levels of adolescent employment tend to increase during holiday periods and decrease around examination times, due to both labour demands (such as at Christmas time) and availability (including after school hours). This level of precariousness and of changing work availability and demand is rarely appreciated.

Third, formal adolescent employment is most common in the fast-food industry, supermarket checkouts, video outlets and a range of other small businesses. Informal adolescent employment is most common in family businesses, including ‘corner’ stores, babysitting tasks, ‘helping’ parents with clothing manufacture as outworkers or – most importantly – on family farms (including market gardens).

Fourth, all working adolescents are exposed to the same hazards and risks as adults performing the same job tasks. However, adolescents may be more vulnerable to biological, chemical and musculoskeletal hazards, as their bodies have not developed fully.

Fifth, while protective OSH regulatory frameworks have been enacted in all advanced industrialised countries, these protections do not necessarily apply to people (including

adolescents) working informally in family businesses or on family farms. Thus, adolescents performing work tasks in domestic premises and/or family businesses may remain outside of protective OSH regulatory frameworks.

Sixth, there is some limited evidence that exposure to job-specific risks is significantly heightened when adolescents are engaged in tasks that would be illegal in formal employer–employee relationships. For example, Landrigan *et al.*[89] identified a 10-fold increase in risk for US children/adolescents employed under illegal conditions compared with those in formal employment relationships.

Seventh, adolescent workers are employed disproportionately in small businesses, including corner stores, video outlets and fast-food stores.[90] Particularly in the retail small business sector, occupational violence is interrelated with other risks, eg confronting a shoplifter, hold-ups for cash, location in higher risk suburbs, remote geographical areas, few workers on site, or on duty during evening/night trading. For example, an Australian nationwide survey estimated that around 50 per cent of small businesses were victimised over a 12-month period, with liquor outlets, service stations, general stores, pharmacies and cafe/restaurant/takeaway businesses at greatest risk.[91,92] Many of these businesses will have employed casual adolescent workers, although unequivocal data are not available. Similarly, in-depth face-to-face interviews with 50 small retail business owner/managers confirmed vulnerability to a range of crimes, including shoplifting, armed hold-ups, credit card fraud and intimidation, and harassment from youths loitering outside shops.[93]

Eighth, the perpetrators of occupational violence – and indeed violence in the community more generally – share a number of characteristics with their adolescent victims. For example, in Britain, young males, those intoxicated with licit or illicit substances, or with a history of violence, are disproportionately likely to be perpetrators of aggression.[94] Research in the Australian healthcare system also identified that perpetrators of occupational violence were disproportionately male, young and intoxicated.[95] Criminal justice system data about a range of violent crimes also shows a consistent over-representation of young males as perpetrators of violence during brawls, sexual assaults, hold-ups, car thefts and 'break and enter' crimes.[96] Thus, by extrapolation, adolescent workers are at increased risk of occupational violence from other teenagers and young adults.

Ninth, it is possible to hypothesise that an adolescent worker – or anybody who appears to be more vulnerable – may be at increased risk from a hold-up at work. Again, adolescents working in retail small businesses during evening/night trading may be particularly vulnerable.

Given that these identified vulnerabilities were drawn from distinct bodies of OSH research literature, it is likely that the most effective preventive policies and strategies also cross disciplinary boundaries and involve numerous bodies and authorities.

Policy options to reduce the risk of occupational violence for precariously employed adolescents

There is a series of policy options and strategies that can reduce the risks to working adolescents. These policy options can be applied at various levels – international, employment and OSH authority, and individual organisation – and can be drawn from different disciplinary paradigms. Some of these potential policy options are summarised below.

International policy options to reduce the exposure of adolescents

In 1999, the ILO introduced its Convention on the Worst Forms of Child Labour (Convention 182), which aimed to eliminate a range of risks, including violence. A range of nation states rapidly adopted Convention 182, with the result that this became the fastest ratified Convention in the ILO's history. Following ratification, nation states are required to initiate immediate preventive action. The ILO also produced a series of publications to assist authorities, including: *Combating child labour: a handbook for labour inspectors* (2002); *Children at work: health and safety risks* (2002); *Action against child labour* (2000); and *In the twilight zone: child workers in the hotel, tourism and catering industry* (1995). Arguably, it is now well and truly time for all advanced industrialised countries to adopt Convention 182 to show a firm commitment to the protection of young workers in their own as well as other countries.

Employment and OSH authority policy options

Within most industrialised countries, little attention has been paid to the risks faced by working adolescents, apart from the OSH regulatory frameworks and criminal codes that assist with the protection of workers in general. In the USA, for example, enforcement of child labour protection has historically been hamstrung because of resource limitations.[97] Within Australia, WorkSafe Western Australia appears to be the only OSH authority that has specifically singled out the protection of adolescents through promulgation of its *Code of practice: safety and health of children and young people in workplaces* (1998).[98] More recently, the Commission for Children and Young People in Queensland initiated reviews of child labour, as part of the push among Labor-controlled state governments to ensure that all adolescents are 'earning or learning'.[99] In Britain, innovative strategies have been devised on a range of fronts, including collaboration between the Health and Safety Executive and the Home Office on occupational violence more generally.[100,101]

Reduction of the OSH risks faced by child/adolescent workers in domestic premises, in family business premises and on family farms/market gardens presents significant difficulties for authorities in all industrialised countries, not least because protective OSH and environmental standards are extremely difficult (and often impossible) to enforce. Nevertheless, within Australian jurisdictions, the Outworkers (Improved Protection) Act 2003, enacted by the Parliament of Victoria, and similar initiatives by the WorkCover Authority of New South Wales, have begun to assist the protection of clothing outworkers covering a range of ages.[102] It remains to be seen whether or not this reduces levels of occupational violence against outworkers.

Broadening the OSH paradigm to reduce exposure to risk

The prevention of occupational violence requires a basic understanding of insights from both criminologists and OSH professionals. The well-known 'hierarchy of control' in OSH identifies that the preferred option is elimination of the hazard, followed by substitution of a more hazardous process with a lesser one, enclosure of the hazard, and last, training and other administrative control strategies. What is known in the criminal justice system as 'crime prevention through environmental design' (CPTED) is directly comparable to the preferred OSH option of 'elimination of the hazard' at the top of the 'hierarchy of control'. There are three core facets to CPTED:

- target hardening
- improved surveillance
- decreasing the rewards.

These prevention strategies are well known in the criminal justice system and applied relatively commonly in retail businesses, but can be adapted with minor modifications to service industry worksites (eg technical colleges, hospitals and public housing authorities and school offices) where either or both of the two core risk factors for occupational violence are present (ie face-to-face contact with clients and cash/valuables on hand).[103] Clearly, adolescents working in small retail businesses are likely to benefit from CPTED strategies that reduce the risk of occupational violence.

Target hardening

'Target hardening' policy options are aimed at making violence/aggression/hold-ups more difficult to enact by the perpetrator, such as in fast-food outlets staffed by adolescents. Strategies adopted by owner/managers can include: 'drop' safes for cash, improved locks, key-card limited access to staff-only areas, enclosure of cash exchange areas, roof cavity protection, bollards outside entrances to prevent ram-raids, alarm activation points in several areas, cash dye bombs, entry/exit buzzers, and duress alarms fitted at the point-of-sale that may be silent internally but are connected to security firms or staff offices (or police in a few countries).[104] Additional after-hours strategies include heavy shutters fitted to doors and windows, and 24-hour alarms. Fittings within business premises can also reduce the risks. For example, counters can be raised so that potential perpetrators of aggression cannot jump over, or benches can be made very wide so that the distance between a customer/client/potential offender and the adolescent worker on duty (and cash register) is increased.[105]

Improved surveillance

An 'improved surveillance' policy aims to increase the visibility of all activities, ensure that there are as many witnesses to adverse events as possible, and make sure that offenders are identified, all in the hope that this visibility will deter potential perpetrators of violence. Strategies may include the installation of CCTV or digital camera recording equipment, shop displays arranged to allow a clear view from outside the premises into the worksite (ie signs in windows removed), increased lighting at point-of-sale, and buildings and rooms designed with large shatter-proof windows that are overlooked by other people routinely going about their normal business tasks or social activities.[106]

Decreasing the rewards

'Decreasing the rewards' strategies reduce the incentive for armed hold-ups. Cash and valuables reduction are central to this policy. Strategies may include: regular deposits of cash made at banks, only a small 'float' retained in cash registers, secure control over valuables (including lap-top computers), and tight cash storage and transfer procedures. Naturally, where the community risk factors are higher, such as in small businesses utilising adolescent labour in isolated areas, trading at night, or those with significant amounts of cash (or prized goods) on hand, enhanced prevention efforts can be made.

Individual organisational policy options to reduce the exposure of adolescents

The evidence presented earlier in this paper concerning a multinational fast-food company clearly shows that the risks faced by adolescents can be reduced successfully if a comprehensive OSHMS is developed, is focused on the specific hazards to which workers are exposed, and is enforced. As OSHMSs have been extensively evaluated elsewhere, the discussion will not be repeated here – except to state that worker involvement in the planning and implementation is essential, including from precariously employed adolescent staff members.[107]

Conclusion

While the employment of children under age 15 appears to be unusual in industrialised countries, adolescent participation in the labour market is widespread. As for all workers, working adolescents are exposed to the 'normal' hazards and risks associated with the industry and occupation where they complete their job tasks.

In this paper, evidence has been presented to show that adolescent workers are disproportionately precariously employed. Previous studies have reported that precarious workers have poorer OSH compared with those hired under more secure employment contracts. The reasons for this poorer overall status include:

- a concentration in more hazardous jobs
- restricted access to OSH training
- a tendency to work excessively long hours and pressure to work very fast
- a lack of coverage by workers' compensation insurance
- disincentives to early reporting of risk factors or injury and illness outcomes.

The available secondary data also suggest that adolescent workers have a higher incidence of a range of negative OSH events than adults. These precariously employed adolescent workers may work in either the formal or informal labour market.

The empirical evidence gathered through face-to-face interviews with 1,810 workers in nine different industry sectors indicates that adolescent workers may be concentrated in jobs where the risk of experiencing occupational violence may be higher. In-depth empirical studies in the fast-food, market garden and home-based garment manufacturing industries furthermore indicate additional vulnerabilities to a range of OSH risks.

Interviewed adolescents who worked in a multinational fast-food company were found to have an OSH profile in keeping with national benchmarks for adults. Nevertheless, 48 per cent had been exposed to verbal abuse over the previous year, 8 per cent to threats, and 2 per cent to physical assaults or hold-ups. In this large scale study, adolescent workers were not found to experience more occupational violence – or have more negative OSH events – than adults doing the same job. The clear implication is that formal employment of adolescents within a company dedicated to 'best practice' can help protect workers' OSH.

In contrast, adolescents working informally were identified to be at increased risk of adverse OSH outcomes vis-à-vis their formally employed counterparts. Many worked for long periods (particularly if school and work hours were added together) or assisted with tasks in workplaces not designed for such purposes. Notably, the clothing outworkers as a whole experienced far more occupational violence than their factory-based counterparts. Adolescent workers employed informally on family farms or in agricultural activities appear to be most at risk of an adverse OSH event, although far more research needs to be done in this area. Unfortunately, no data could be identified on the occupational violence experiences of adolescents working in market gardening. Nevertheless, overall, the available data indicate that adolescents employed informally:

- are additionally vulnerable as they may have to perform tasks not designed for the physical make-up of growing bodies
- are largely unprotected by the OSH regulatory frameworks that have been enacted in industrialised countries

- are likely to be ignorant of the hazards and risks to which they are exposed
- are not covered by an OSHMS
- are unlikely to have any workers' compensation coverage
- are unlikely to be aware of occupational violence prevention strategies.

As a consequence, the workers' compensation databases are unlikely ever to identify comprehensively the occupational violence – or work-related injury and illness – experiences of adolescent workers in the informal economy (unless the criminal codes are breached, such as with a homicide or severe assault).

In sum, there are multiple possible causes for the heightened vulnerability of adolescents to occupational violence, including skewing of young workers towards service sector jobs that require greater face-to-face contact with clients/customers, insufficient training, precarious employment, and concentration in higher-risk job tasks (such as handling cash, which is a risk factor for hold-ups). Those adolescents working in retail small business outlets (such as fast-food) after regular office hours may be particularly vulnerable to hold-up-related violence – especially if appropriate and effective preventive interventions have not been implemented. However, empirical evidence suggests that formal sector employment in an organisation with a stringent OSHMS can reduce these risks to the same level as adults doing similar job tasks. In contrast, those adolescents working informally in family businesses may experience additional vulnerabilities as they are precariously employed, have limited redress, and have restricted access to preventive strategies and information. Moreover, aggressive acts against them are relatively 'invisible' when they cannot be reported readily to OSH authorities. Arguably, only when occupational violence perpetrated against a precariously employed adolescent worker breaches a criminal code is it likely to be revealed at all. Thus, the occupational violence experiences of precariously employed teenage workers are likely to be a substantial – but under-recognised – OSH problem in most industrialised countries.

References

1. Mayhew C. Occupational violence: a neglected OHS issue? *Policy and Practice in Health and Safety* 2003; 1 (1): 31–58.
2. Campbell I and Burgess J. Casual employment in Australia and temporary employment in Europe: developing a cross-national comparison. *Work, Employment and Society* 2001; 15 (1): 171–184.
3. Quinlan M, Mayhew C and Bohle P. The global expansion of precarious employment, work disorganisation, and consequences for occupational health: placing the debate in a comparative historical context. *International Journal of Health Services* 2001; 31 (3): 507–536.
4. Mayhew C. *Barriers to implementation of known OHS solutions in small business.* Canberra: AGPS, National Occupational Health and Safety Commission and Division of Workplace Health & Safety, 1997.
5. Mayhew C, Quinlan M and Bennett L. *The effects of subcontracting/outsourcing on occupational health and safety.* Sydney: University of New South Wales, Industrial Relations Research Centre Monograph, 1996.
6. Op. cit., Campbell and Burgess, 2001: 173.
7. Op. cit., Quinlan *et al.*, 2001.
8. Mayhew C and Quinlan M. The effects of changing patterns of employment on reporting occupational injuries and making workers' compensation claims. *Safety Science Monitor* 2001; 5 (1); see www.ipso.asn.au.

9. Mayhew C. OHS in Australian 'micro' small businesses: evidence from nine research studies. *Journal of Occupational Health and Safety – Australia and New Zealand* 2000a; 16 (4): 297–305.
10. Op. cit., Quinlan *et al.*, 2001.
11. Op. cit., Mayhew and Quinlan, 2001.
12. Mayhew C. Occupational violence in industrialized countries: types, incidence patterns, and 'at risk' groups of workers. In: Gill M, Fisher B and Bowie V (eds). *Violence at work: causes, patterns and prevention.* Cullompton: Willan Publishing, 2002a; 21–40: 33.
13. Op. cit., Mayhew *et al.*, 1996.
14. Op. cit., Mayhew, 2000a.
15. Op. cit., Mayhew and Quinlan, 2001.
16. Mandryk J, Driscoll T, Mazurski E, Healey S, McLean F, Travis J, Maddock L, Hendrie L and Fung A. *Data on OHS in Australia: the overall scene.* Sydney: National Occupational Health and Safety Commission (NOHSC), October 2000a.
17. International Labour Organisation (ILO). *A future without child labour.* Geneva: ILO, 2002.
18. International Labour Organisation (ILO). *IPEC action against child labour: highlights 2002.* Geneva: ILO International Programme on the Elimination of Child Labour, 2003a.
19. Lyall K. Foreign objects. *The Weekend Australian*, 1–2 February 2003: 22.
20. Murdoch L. Alone in a sea of cruelty. *The Sydney Morning Herald*, 5 June 2001: 13.
21. Galli R. *The economic impact of child labour.* Discussion paper for the International Institute for Labour Studies at the ILO, Decent Work Research Programme. Switzerland: University of Lugano, 2001.
22. O'Loughlin E. Descent into lives of silent servitude. *The Sydney Morning Herald*, 6 June 2001: 17.
23. Thompson E P. *The making of the English working class.* Harmondsworth: Penguin, 1982.
24. Engles F. *The condition of the working class in England.* St Albans: Panther, 1976.
25. Mayhew H. *Mayhew's London: being selections from 'London labour and the London poor'.* London: Spring Books, 1851.
26. Kruse D and Mahony D. Illegal child labor in the United States: prevalence and characteristics. *Industrial and Labor Relations Review* 2000; 54 (1): 17–40; and McKechnie J, Lavalette M and Hobbs S. Child employment research in Britain. W*ork, Employment and Society* 2000; 14 (3): 573–580.
27. Ibid., Kruse and Mahony, 2000; Suruda A and Halperin W. Work related deaths in children. *American Journal of Industrial Medicine* 1991; 19: 739–745.
28. Knight E, Castillo D and Layne L. A detailed analysis of work-related injury among youth treated in emergency departments. *American Journal of Industrial Medicine* 1995; 27 (6): 793–805.
29. Centers for Disease Control and Prevention (CDC). Work-related injuries and illnesses associated with child labor – United States, 1993. *Journal of the American Medical Association* 1996; 276 (1): 16–17.
30. Op. cit., Kruse and Mahony, 2000; and McKechnie *et al.*, 2000.
31. Brooks D and Davis L. Work-related injuries to Massachusetts teens, 1987–1990. *American Journal of Industrial Medicine* 1996; 29 (2): 153–160.
32. Belville R, Pollack S, Godbold J and Landrigan P. Occupational injuries among working adolescents in New York State. *Journal of the American Medical Association* 1993; 269 (21): 2754–2759.
33. Cooper S and Rothstein M. Health hazards among working children in Texas. *Southern Medical Journal* 1995; 88 (5): 550–553.

34. Op. cit., Campbell and Burgess, 2001.
35. Burgess J and Campbell I. The nature and dimensions of precarious employment in Australia. *Labour and Industry* 1998; 8 (3): 5–21.
36. Joint Standing Committee on Immigration. Cited in Quinlan M. *The implications of labour market restructuring in industrialised societies for occupational health and safety.* Working Paper 116. Sydney: University of New South Wales, School of Industrial Relations and Organisational Behaviour, 1997.
37. Mayhew C. Adolescent worker OHS. *Journal of Occupational Health and Safety – Australia and New Zealand* 2000b; 16 (2): 137–143.
38. See, for example, Hulls R. Look out for no. 1 campaign. Melbourne: A safety campaign launched by the Minister for WorkCover, the Honourable Rob Hulls. Cited in *Journal of Occupational Health and Safety – Australia and New Zealand* 2004; 20 (4): 299.
39. National Occupational Health and Safety Commission. *Compendium of workers' compensation statistics Australia*. Canberra: AusInfo. See www.nohsc.gov.au.
40. Miller M and Kaufman J. Occupational injuries among adolescents in Washington State, 1988–1991. *American Journal of Industrial Medicine* 1998; 34 (2): 121–132.
41. Massachusetts Medical Society (MMS). Work-related injuries and illnesses associated with child labour – United States, 1993. *Morbidity and Mortality Weekly Report* 1996; 45 (22) 464–469.
42. Op. cit., Kruse and Mahony, 2000; CDC, 1993; Cooper and Rothstein, 1995.
43. NOHSC. *Work-related traumatic fatalities in Australia, 1989 to 1992*. Canberra: Ausinfo, 1998.
44. Franklin R, Mitchell R, Driscoll T and Fragar L. *Farm-related fatalities in Australia, 1989–1992*. Canberra: Australian Centre for Agricultural Health and Safety, National Occupational Health and Safety Commission, and Rural Industries Research and Development Corporation, 2000: 25–27.
45. Belville R, Pollack S, Godbold J and Landrigan P. Occupational injuries among working adolescents in New York State. *Journal of the American Medical Association* 1993; 269 (21): 2754–2759.
46. LaFlamme L. Age-related injuries among male and female assembly workers: a study in the Swedish automobile industry. *Relations Industrielles* 1997; 52 (2): 608–619.
47. Op. cit., Mayhew 2000b and Mayhew 2002a.
48. Op. cit., Miller and Kaufman 1998.
49. Nielsen P. Fewer child and youth accidents in Denmark. *Euro Echo,* February 1997; 1: 9.
50. Op. cit., CDC, 1996.
51. Brooks D and Davis L. Work-related injuries to Massachusetts teens, 1987–1990. *American Journal of Industrial Medicine* 1996; 29 (2): 153–160.
52. Jacobsson B and Schelp L. One-year incidence of occupational injuries among teenagers in a Swedish rural municipality. *Scandinavian Journal of Social Medicine* 1988; 16: 21–25.
53. See detailed analysis in Segessenmann T. *International comparisons of recorded violent crime rates for 2000*. Wellington, New Zealand: Ministry of Justice, 2002: 3.
54. International Labour Organisation (ILO). *Code of practice on workplace violence in services sectors and measures to combat this phenomenon.* Geneva: International Labour Office, 2003b: 4.
55. National Occupational Health and Safety Commission (NOHSC). *Program One Report: 'Occupational violence'*. Discussion paper presented at the 51st Meeting of NOHSC, Hobart, 10 March 1999a: 1.
56. Ibid.
57. Chappell D and Di Martino V. *Violence at work*. Second edition. Geneva: International Labour Office, 2000: 11.

58. Ibid.
59. Gill M, Fisher B and Bowie V (eds). *Violence at work: causes, patterns and prevention.* Cullompton: Willan Publishing, 2002.
60. National Occupational Health and Safety Commission (NOHSC). *Work-related homicide in Australia, 1989–1992.* Canberra: AusInfo, 1999b.
61. Warchol G. *Workplace violence, 1992–96. National Crime Victimization Survey.* Washington, DC: Bureau of Justice Statistics Special Report, Department of Justice, Office of Justice Programs, NCJ, 28 July 1998: 6.
62. O'Neil D. *Non-fatal workplace violence: an epidemiological report and empirical exploration of risk factors.* University of Nebraska PhD thesis published by US Department of Justice, Document number 199359, USA, 2003: 9.
63. Mayhew C and Chappell D. The occupational violence experiences of some Australian health workers: an exploratory study. *Journal of Occupational Health and Safety – Australia and New Zealand* 2003; 19 (6): 3–43.
64. Mayhew C. Occupational violence in industrialized countries: types, incidence patterns, and 'at risk' groups of workers. In: Gill M, Fisher B and Bowie V (eds). *Violence at work: causes, patterns and prevention.* Cullompton: Willan Publishing, 2002a: 21–40.
65. Loomis D, Wolf S, Runyan C, Marshall S and Butts J. Homicide on the job: workplace and community determinants. *American Journal of Epidemiology* 2001; 154 (5): 410–417.
66. Op. cit., Chappell and Di Martino, 2000.
67. Paoli P and Parent-Thirion A. *Working conditions in the acceding and candidate countries.* Dublin: European Foundation for the Improvement of Living and Working Conditions, 2003: 63.
68. Upson A. *Violence at work: findings from the 2002/2003 British Crime Survey.* Online report 04/04. London: Home Office, 2004: 1. www.homeoffice.gov.uk/rds/pdfs2/rdsolr0404.pdf
69. Op. cit., O'Neil 2003: 7.
70. Fisher B and Gunnison E. Violence in the workplace: gender similarities and differences. *Journal of Criminal Justice* 2001; 29 (2): 145–55.
71. Op. cit., Warchol 1998: 1.
72. National Occupational Health and Safety Commission. *Occupational health and safety issues for young workers in the fast food industry.* Written by Mayhew C, Johnstone R, Nicholson M, Cribb M and Murphy R. Canberra: AusInfo, National Occupational Health and Safety Commission, together with the Division of Workplace Health and Safety (Qld) and the WorkCover Authority of New South Wales, 2000b.
73. Similar findings have been reported in the USA. See Heinzman M, Thoreson S, McKenzie L, Cook M, Hoffman R, Parker D and Carl W. Occupational burns among restaurant workers – Colorado and Minnesota. *Archives of Dermatology* 1994; 130 (6): 699–701.
74. Op. cit., NOHSC, 2000b.
75. Op. cit., NOHSC, 2000b.
76. Parker F. *Developing an understanding of the occupational health and safety practices of market gardeners and cut flower growers of non-English-speaking background in the Sydney Basin.* Report to the National Occupational Health and Safety Commission. Sydney: 2000.
77. Ibid, p. 188.
78. Mayhew C and Quinlan M. *Outsourcing and occupational health and safety: a comparative study of factory-based and outworkers in the Australian TCF industry.* Sydney: University of New South Wales, Industrial Relations Research Centre, 1998: 105.

79. Mayhew C and McCarthy P. Occupational violence: a pilot study of workers in a juvenile detention centre. *Journal of Occupational Health and Safety – Australia and New Zealand* 2004; 20 (6). In press.
80. McCarthy P, Mayhew C, Barker M and Sheehan M. Occupational violence in tertiary education: risk factors, perpetrators and prevention. *Journal of Occupational Health and Safety – Australia and New Zealand* 2003; 19 (4): 319–26; and Mayhew C, McCarthy P, Barker M and Sheehan M. Student aggression in tertiary education institutions. *Journal of Occupational Health and Safety – Australia and New Zealand* 2003; 18 (4): 327–335.
81. Op. cit., Mayhew and Chappell 2003.
82. Mayhew C and Grewal D. Occupational violence/bullying in the maritime industry: a pilot study. *Journal of Occupational Health and Safety – Australia and New Zealand* 2003; 19 (5): 457–63.
83. Mayhew C and Quinlan M. Occupational violence in long distance road transport: a study of 300 Australian truck drivers. *Current Issues in Criminal Justice* 2001a; 13 (1): 36–46.
84. Op. cit., NOHSC, 2000b.
85. Op. cit., Mayhew and Quinlan, 1998.
86. Mayhew C. *Violent assaults on taxi drivers: incidence patterns and risk factors*. Trends and issues in crime and criminal justice. No. 178. Canberra: Australian Institute of Criminology, 2000c.
87. Mayhew C. Getting the message across to small business about occupational violence and hold-up prevention: a pilot study. *Journal of Occupational Health and Safety – Australia and New Zealand* 2002b; 18 (3): 223–230.
88. Op. cit., Mayhew, 2002a; McCarthy P and Mayhew C. *Safeguarding the organisation against violence and bullying: an international perspective*. Basingstoke: Palgrave-MacMillan, 2004.
89. Landrigan P, Pollack S, Belville R and Godbold J. Child labor: risks and prospects for prevention. In: Mehlman M and Upton A (eds). *The identification and control of environmental and occupational diseases: hazards and risks of chemicals in the oil refining industry. Advances in modern environmental toxicology XXIII*. Princeton: Princeton Scientific Publishing Co, 1994: 567.
90. Center for Disease Control and Prevention (CDC). *NIOSH alert: preventing deaths and injuries of adolescent workers*. Cincinnati: CDC, US Department of Health and Human Services, 1995.
91. Perrone S. *Crimes against small business in Australia: a preliminary analysis*. Trends and Issues in Crime and Criminal Justice, no. 184. Canberra: Australian Institute of Criminology, 2000.
92. Taylor N and Mayhew P. *Patterns of victimisation among small retail businesses*. Trends and Issues in Crime and Criminal Justice, no. 221. Canberra: Australian Institute of Criminology, 2002.
93. Op. cit. Mayhew 2002b.
94. Turnbull J and Paterson B (eds). *Aggression and violence: approaches to effective management*. London: MacMillan, 1999.
95. Op. cit., Mayhew and Chappell, 2003.
96. Bureau of Crime Statistics and Research. *Who are the offenders?* Sydney: NSW Bureau of Crime Statistics and Research, 2003.
97. Op. cit. Suruda and Halperin 1991.
98. Worksafe Western Australia. *Code of practice: safety and health of children and young people in workplaces*. Perth: Worksafe Western Australia Commission, 1998. See also

Worksafe Western Australia and WorkCover WA (WWA). *State of the work environment: occupational injuries and diseases to young workers. Western Australia 1994/95*. Perth: Worksafe Western Australia and WorkCover, 1996.

99. Commission for Children and Young People and Child Guardian. *Queensland Review of Child Labour.* Discussion paper. Brisbane: Commission for Children and Young People and Child Guardian, 2004. See www.ccypcg.qld.gov.au.
100. Op. cit., Upson, 2004.
101. Budd T. *Violence at work: new findings from the 2000 British Crime Survey.* London: Health and Safety Executive and the Home Office, 2001.
102. Parliament of Victoria. Outworkers (Improved Protection) Act 2003. Act No. 22/2003. Melbourne: Parliament of Victoria, 2003.
103. See Clarke R (ed). S*ituational crime prevention: successful case studies*. New York: Harrow and Heston, 1992; and also Crowe T and Adams J. CPTED: applying principles to offices and large sites. *Security Australia* 1995; 15 (2): 36–39; and also Caple D. Reduction of occupational violence through architectural controls and work procedures. *Journal of Occupational Health and Safety – Australia and New Zealand* 2000; 16 (5): 437–443; and also Jeffery R and Zahm D. Crime prevention through environmental design, opportunity theory, and rational choice models. In: Clarke R and Felson M (eds). *Routine activity and rational choice: advances in criminological theory.* Vol. 5. New Jersey: Transaction Publishers, 1993.
104. Mayhew C. *Violence in the workplace – preventing commercial armed robbery. A practical handbook*. Research and Public Policy Series, no.33. Canberra: Australian Institute of Criminology, 2000d.
105. Swanton B and Webber D. *Protecting counter and interviewing staff from client aggression.* Canberra: Australian Institute of Criminology, 1990: 22.
106. Op. cit., Mayhew, 2000d; and Swanton and Webber, 1990.
107. See Frick K, Jensen P-L, Quinlan M and Wilthagen T. *Systematic occupational health and safety management*. Amsterdam: Pergamon-Elsevier, 2000.