

Behaviour Patterns Associated With Fatal Crashes Involving Intoxicated Pedestrians – An Analysis of the ATSB Coronial Database, 1999-2001

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Biography

Peter Cairney has a background in psychology, and has worked on many aspects of driver behaviour and traffic safety. His early work focussed on road signs and markings, but since then he has worked on railway level crossings, trucks, pedestrians and cyclists, and Intelligent Transport Systems. Current projects include reviewing the possible benefits of daytime running lights in Australia and assessing the opportunities currently available through the integration coded crash and traffic data with asset management records

Abstract

A literature review carried out as an earlier stage of this project concluded that there is a dearth of information regarding alcohol-affected pedestrian crashes. The present study reports a detailed analysis of crashes involving intoxicated pedestrians in the ATSB Coronial Database. Records for 240 cases for the years 1999, 2001 and 2002 were examined in the study. A researcher read over each report, then attempted to use the coronial record to answer a standard set of questions about each case. Although the general pattern of findings relating to intoxicated pedestrian crashes was replicated (ie male victims, high BACs, night and weekend occurrence, and over-representation of indigenous persons), there were new findings relating to behavioural patterns. The most frequent drinking venues were hotels and other people's homes. Victims tended to have been drinking for long periods, many were identified as drinking in company, and were almost entirely local residents. In 14% of cases, there was an argument which precipitated the victim's leaving the drinking venue. At the time of the crash, the victim was walking along the road in approximately 30% of cases, lying on the road in another 20% of cases, sitting in the road in another 2%, and standing on or near the edge of the road in a further 5%. Almost all pedestrians were struck by the vehicle within two hours of finishing drinking. Surprisingly, there was no association between BAC level and pedestrian movement at the time of the crash. Recommendations arising from the study include strengthening Responsible Serving of Alcohol programs, publicity aimed fellow patrons and drivers, programs targeted at disadvantaged groups in the community, traffic engineering treatments outside drinking venues, and continuing monitoring of alcohol affected traffic casualties.

1. INTRODUCTION

Intoxicated pedestrians have been recognised as a significant road safety challenge for the last decade. Although individual jurisdictions in Australia have acted to address the problem by a variety of means, there has to date been little sharing of information and experience.

A review carried out as an earlier stage of this project found that approximately 100 alcohol-affected pedestrian deaths occur in Australia each year, equivalent to more than 5% of road deaths. It was not possible to satisfactorily estimate injuries to alcohol-affected pedestrians. Despite the extent of the problem – approximately double the number of cyclist deaths – the review concluded that there is a dearth of information regarding the basic circumstances of alcohol-affected pedestrian crashes. Some overseas studies throw light on these issues, but there is no Australian study available. It became apparent that there was an opportunity to remedy this lack of basic knowledge by analysing cases in the Australian Transport Safety Bureau's recently developed Coronial Database, which contains records of all coronial inquiries arising from transport-related deaths in Australia. While the investigation confirmed

many of the characteristics of intoxicated pedestrian crashes identified by other researchers, this report focuses on the new insights emerging from the study and on recommendations to address the issue.

2. METHOD

All records for the years 1999, 2001 and 2002 which involved the death of a pedestrian aged 16 or over who had a blood alcohol concentration of 0.05 g/100ml or greater were selected for inclusion in the study, a total of 304. Considerations of confidentiality required that the records were accessed at the ATSB offices, and that only data that was dissociated from all personal identifiers was available for analysis off-site. In the time available, the research team was able to process 240 of these records, starting with the 2001 crashes and working backwards. A researcher read over each report, then attempted to use the coronial record to answer a standard set of questions about each case, relating to where, for how long and with whom the person had been drinking, who was with them when they left the drinking venue, and aspects of the setting and behaviour at the time of the crash. These answers were recorded on a prepared form, and later entered into an electronic database for analysis.

3. RESULTS

3.1 Confirmation of earlier studies

The findings of previous investigations into crashes involving pedestrians were confirmed. The deceased persons in the present study were predominantly male. Indigenous people were heavily over-represented, which was reflected in the high degree of over-representation for the Northern Territory. Collisions occurred almost entirely at night, with Friday and Saturday the most over-represented days and Monday and Tuesday the most under-represented. Many of the deceased reached very high levels of intoxication, with 80% exceeding a BAC of 0.15 g/100ml and over 30% exceeding 0.30 g/100ml..

3.2 Patterns of drinking and socialising

Patterns of drinking and socialising are summarised in Table 1. Drinking generally took place as part of normal socialising, most frequently in a hotel or club, and next most frequently in private homes. It could be ascertained that approximately half the deceased persons were drinking in company, most frequently with friends.

Table 1. Patterns of socialising and drinking prior to the collision.

	Frequency	Per cent
Normal socialising	66	27.5
Party or function	28	11.7
Other occasion	11	4.6
Not stated	135	56.3
Hotel or club	73	30.5
Own or other's home	39	36.3
Other location	37	15.4
Not stated	91	37.9
Drinking with 1 other person	24	10.0
Drinking with 2 or 3 people	21	8.7
Drinking with more than 3 people	64	26.7
Not stated how many people	131	54.6
Drinking with spouse/ family/ household members	21	8.8
Friends	69	28.7
Workmates	7	2.9
Others	2	0.8
Not stated	141	58.8
Less than 4 hrs	16	6.7
4 to 5 hrs	21	8.7
6 hrs or more	59	24.6
Not stated	144	60.00
Disagreement/quarrel	34	14.2
Not stated/could not be determined	206	85.8

The deceased tended to have been drinking for long periods, most often six hours or more, and many were identified as drinking in company, generally with friends. As mentioned above, the deceased reached very high BAC levels. In addition, it was established that 17.9% of the deceased had taken one or more other drugs, with cannabis being by far the most frequently taken other drug (8.8% of cases).

3.3 Circumstances of the crash

Where the time between the end of drinking and the crash could be determined, most pedestrians were hit within two hours of the end of the drinking session. Where the distance from the drinking location could be ascertained, half the cases occurred at the front of or across the road from the premises. The victim was walking along the road in approximately 30% of cases, lying on the road in another 20% of cases and sitting in the road in another 2%, and standing on or near the edge of the road in a further 5% of cases. Crosstabulations revealed that, contrary to expectations, the BACs of pedestrians who were sitting or lying on the road at the time of the collision were no higher than those of the pedestrians who were walking or standing.

However, there are large differences in the proportion of pedestrians lying on the road in different locations. Pedestrians in country towns, rural and remote locations are more about equally liable to be walking or standing, or lying down or sitting, while these latter behaviours are much less prevalent in cities. The difference is statistically significant.

Table 2. Pedestrian movement and type of settlement.

Pedestrian movement	City locations	Country town, rural and remote locations
Walking or standing	40 (75.5%)	46 (51.1%)
Sitting or lying	13 (24.5%)	44 (48.9%)
Total	53 (100.0%)	90 (100.0%)

4. POSSIBLE COUNTERMEASURES

4.1 Responsible serving of alcohol

All Australian jurisdictions have some form of Responsible Serving of Alcohol programs in place. The large percentage of cases where the drinking took place in hotels or clubs suggests that staff in these establishments could have a role in preventing intoxicated pedestrian crashes. The very high BAC levels reached by a large proportion of the fatally injured pedestrians reinforces this point.

There are three possible ways in which RSA programs could help the situation. The first is by preventing patrons reaching extreme levels of intoxication. The second is by encouraging staff of licensed premises to ensure any intoxicated person they ask to leave the premises is conveyed home in a safe manner. This is a difficult area as the staff have no control over the person's movements outside the premises. While the person is on the premises, they can refuse service and ask the person to leave, but they have no way of forcing the person, eg to take a taxi home. The third is by being aware of the dangers of a person going off on their own, and trying to persuade one or more of the persons drinking companions to accompany them, especially if there has been an argument. Most of the victims in the present study had been drinking with other people, who were generally friends or family. In a proportion of these cases, it may be possible to persuade one or more of the drinking companions to accompany the intoxicated person if they insist on walking.

These suggestions are not without their problems, as there is a question as to how far licensed premises can be expected to take their responsibilities to their customers. However, this must be seen against a background where community expectations regarding safety and the responsibility suppliers bear for their actions are constantly changing, and where these changing expectations are finding expression in legal decisions.

4.2 Public education and publicity

Public education and publicity seem unlikely to affect the basic behaviours. The drinking behaviour in question is a response to a complex set of social and individual motivations which is unique to the individual. Education relating to the risk this entails is unlikely to change that behaviour. Unlike the case with drink driving, no offence is being committed so an approach based on a high probability of detection, with severe consequences for being detected, is not an option. Publicity at the drinking venue is unlikely to affect the potential victims since they are usually heavily intoxicated by the time they are ready to leave. However, there would seem to be three possible ways in which public education and publicity may be able to play a role.

First, if the risks of walking while highly intoxicated were better understood, some drinkers might plan in advance to organise a lift or take a taxi home from their drinking venue. This could result in a reduction in the exposure of intoxicated pedestrians.

Second, the drinking companions of the potential victims could be targeted by a combination of public education and materials at the venues which encourage them to make sure intoxicated people are not left to go home on their own, even after an argument. Most people at the venues were drinking with friends or family, so this would seem to be an achievable outcome.

Third, public education could target hosts entertaining in their own homes with the same basic messages about the risks of walking while intoxicated. Other person's homes were identified as the drinking venue in 14.2% of cases.

4.3 Physical treatments outside licensed premises

In almost half the cases where the location of the collision could be specified in relation to the drinking venue, it was immediately outside the venue. This suggests that physical countermeasures in the vicinity of licensed premises may be a worthwhile investment.

While physical treatments appear attractive, it may be that the intoxicated pedestrian phenomenon is too dispersed for them to be cost effective. This issue will bear close investigation. The few infrastructure programs that have been put in place to address intoxicated pedestrian issues should be monitored carefully to determine whether they are achieving their objectives and whether they are cost effective.

4.4 Persons lying on the road

Persons lying or sitting on the road make up 24% of all intoxicated pedestrian fatalities. The best hope of reducing this issue would seem to be through human intervention. Twenty-two percent of the persons killed while lying on the road were accompanied by at least one other person.

There may also be scope for reducing the problems associated with lying on the road through addressing motorists. The research team came across a few instances where a motorist found a pedestrian lying on the road, went to get help, and returned to find that the person had been run over. Perhaps motorists could be persuaded, when coming across a person lying on the road, to park their vehicle to protect the person and to use a mobile

phone or passing motorists to summon assistance. Consideration of personal security would make it unwise to approach persons lying on the road, at least for persons driving alone.

4.5 On-going monitoring of pedestrian fatalities

The Stage 1 report showed that alcohol-affected pedestrians account for some 5.5% of road fatalities in Australia. The total number of alcohol-affected fatalities would serve as a measure of the success of the entire range of measures being directed to the problem, and it would not be possible to distinguish the effects of different measures on this basis. Nevertheless, an overall indicator of progress would be useful for such a large portion of the road toll.

It would be particularly worthwhile monitoring the BAC levels of pedestrians killed in traffic crashes as an indicator of the impact of Responsible Serving of Alcohol programs. One of the main objectives of Responsible Serving of Alcohol is the prevention of extreme levels of intoxication, and it is by far the largest program which has this amongst its goals. Reductions in the current high proportions of pedestrian fatalities with very high BACs would be evidence that Responsible Serving of Alcohol is beginning to be effective, even in an environment where the number of alcohol-affected pedestrian fatalities with lower BACs was not declining. On the other hand, a reduction in alcohol-affected deaths in the absence of reduction in the proportion of very high BACs would suggest the program is not being effective, and that the reductions in deaths were due to other measures. In this context, continuing monitoring assumes a high priority.

5. RECOMMENDATIONS

The recommendations of the study which related to countermeasures are:

1. A higher priority for the intoxicated pedestrian issue in road authority action plans and increased attention from the road safety research community.
2. Reinforce Responsible Serving of Alcohol Programs, including reconsidering the criteria for refusal of service, making it the duty of all employees to inform bar staff of persons who seem to be affected by alcohol, to encourage staff to organise transport home where required, and to encourage staff to arrange for someone to accompany intoxicated persons.
3. Publicity aimed at patrons, specifically to encourage them to assist intoxicated persons.
4. Publicity aimed at drivers, specifically to encourage them to report persons lying on the road and to use their vehicle to protect persons lying on the road until help arrives.
5. Traffic engineering treatments outside drinking establishments, including safety audits
6. Programs aimed at disadvantaged groups in the community.
7. Continuing monitoring of alcohol-affected pedestrian fatalities.

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