

DID THE PREVALENCE OF ASSAULT IN NSW INCREASE BETWEEN 2006 AND 2007?

An analysis of the discrepancy between NSW Police and ABS figures

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The 2007 Australian Bureau of Statistics Crime and Safety Survey reported a significant increase in the prevalence of assault in NSW in the 12 months to April 2007, compared with the 12 months to April 2006. NSW Police figures over the same period showed no increase in assault. This paper examines possible explanations for the discrepancy. It appears most likely that the difference between NSW Police and ABS figures is due to sampling variability. In essence, the ABS estimate of the prevalence of assault in the 12 months to April 2006 was too low. This created the false impression that the prevalence of assault had increased between 2006 and 2007, when, in fact, the true level of assault had remained stable.

BACKGROUND

NSW has two sources of information about crime. The first consists of crimes reported to and/or recorded by NSW Police in the Computerised Operational Policing System (COPS). The second is an annual victim survey, the Crime and Safety Survey, funded jointly by the NSW Bureau of Crime Statistics and Research and the NSW Police but conducted by the Australian Bureau of Statistics (ABS)¹.

Over the period 1990 to 2007, NSW Police and ABS figures on assault have tracked one another fairly well (see Appendix 1). In November 2007, however, the ABS released the results of its annual Crime and Safety Survey (ABS cat no. 4509.1) dealing with crime over the 12 months to April 2007. According to the report, the percentage of NSW residents who said they had been assaulted or threatened with assault was 26 percent higher in the 12 months to April 2007 compared with the 12 months to April 2006. The relevant figures were 3.5% and 4.4%, respectively. If the ABS figures are taken at face value and allowance is made for assaults not reported to the police (67.6 percent), the ABS figures indicate that, in the 12 months to April 2007 compared with the 12 months to April 2006, the NSW Police should have recorded an additional 16,000 assault incidents.

As it happens, NSW Police figures show very little increase in the incidence of assault over this period. During the period May 2005 to April 2006, NSW Police recorded a total of 72,268 incidents of assault. In the period May 2006 to April 2007, the number of incidents of assault recorded by the NSW Police rose to 73,159, an increase of just 1.2 percent. The purpose of this report is to shed light on the reasons for this discrepancy.

POSSIBLE EXPLANATIONS FOR THE DISCREPANCY

There are a number of possible explanations for the discrepancy. The main possibilities are as follows:

1. There has been a growth in the number of assaults reported but these incidents have been either not recorded by NSW Police or they were recorded as an offence other than assault.
2. The prevalence of assault has risen but this has been offset by a fall in the number of people experiencing repeated assaults.
3. The apparent increase in assault is an artefact of changes in survey methodology.
4. The apparent increase in assault is a reflection of sampling variability.

In the following sections we examine the evidence bearing on each of these explanations.

There has been a growth in the number of assaults reported but these incidents have been either not recorded by NSW Police or they were recorded as an offence other than assault.

There are three main ways in which this could occur:

- (a) Police could have become more reluctant to record assaults in COPS (under any heading);
- (b) Alternatively, they could have begun recording an increasing proportion of assaults as a non-criminal event;
- (c) Finally, they could have begun recording an increasing proportion of assaults as some other kind of crime (e.g. harassment, intimidation).

Have police become more reluctant to record assaults?

One way to test this possibility is to examine calls to '000'. Calls to this number are automatically recorded. If NSW Police at LAC level had become less willing to record an assault, there should be an increase in the percentage of callouts ('000' calls) for assault-related incidents (i.e. incidents where an assault is alleged to have occurred) that have no corresponding assault record in COPS.

From 2005-06 to 2006-07, the number of total callouts to NSW Police rose from 247,373 to 254,040. The percentage of assault-related callouts remained constant at approximately 21.5%. The number of assault-related call-outs rose slightly (2 percent), from 58,190 in 2005-06 to 59,197 in 2006-07. The percentage of assault-related call-outs that resulted in a record in the COPS system, however, remained constant at 63%. There is no evidence, then, to suggest that there has been an increase in callouts for assault that have not been recorded as assault incidents in the COPS system.

Are police recording a larger proportion of assaults as a non-criminal event?

In many instances, what appears to be an assault-related call-out turns out on further investigation by police not to be an assault at all. The resident of a neighbourhood hearing someone yelling and screaming, for example, may call the police fearing that an assault is taking place or is

about to take place. When police arrive, they may find no evidence that anyone has been physically attacked or threatened with attack. In situations like this it is common for police to classify the event as either occurrence only, domestic violence – no offence, or personal violence – no offence. If police have begun classifying genuine assaults in one of these categories the seriousness of incidents recorded in them should have increased.

To test this possibility, a sample of non-criminal police event narratives was drawn from the three Statistical Divisions where the disparity between the NSW Police and ABS Crime and Safety Survey assault figures between 2005/06 and 2006/07 was most acute. The Divisions were:

- ◆ Lower Northern Sydney
- ◆ Gosford-Wyong
- ◆ Outer South Western Sydney

The narratives drawn from these Divisions fell into one of three categories: occurrence only, domestic violence – no offence, and personal violence – no offence. Initially, 800 occurrence only events and 150 domestic or personal violence – no offence events were selected; subsequently a further 360 domestic/personal violence – no offence events were selected. The narratives associated with these events were classified into one of six different categories:

- 0 = no violence
- 1 = raised voice, minor threats, victim had no fear for safety
- 2 = argument, threats
- 3 = violence against object or an object thrown
- 4 = violence with no lasting injury (e.g. pushing, shoving)
- 5 = serious violence

The analysis sought to determine whether there was any growth in the proportion of non-criminal events at the more serious end of the spectrum (i.e. whether there was an increase in the proportion of narratives coded as '3'; '4' or '5', instead of '0', '1' or '2'). The non-violent incident events were excluded. Table 1 shows the results of the analysis.

Table 1: Changes in levels of violence in non-criminal events in a sample coded by BOCSAR, 2005/06 and 2006/07

Level of violence	Outer South Western Sydney		Lower Northern Sydney		Gosford-Wyong	
	May 05- April 06	May 06- April 07	May 05- April 06	May 06- April 07	May 05- April 06	May 06- April 07
1-2	84.6	85.1	83.3	75.0	81.9	83.9
3-5	15.4	14.9	16.7	25.0	18.1	16.1
Total n	65	67	78	76	72	87

There is no evidence in Table 1 of any growth in the proportion of events where high levels of violence (coded 3 to 5) were present. The discrepancy between Police and ABS figures on trends in assault cannot reasonably be explained by the hypothesis that NSW Police are classifying more assault-related incidents as either an occurrence only, domestic violence – no offence, or personal violence – no offence.

Are police recording assaults under some other category of crime?

We turn, next, to the third possibility mentioned above. If NSW Police had experienced an increase in reports of assault but were classifying them under some other related heading, we would expect some other related category of crime to have increased. The two NSW Police offence categories most closely related to assault are:

- ◆ Harassment, threatening behaviour and public nuisance; and
- ◆ Other offences against the person

From the 12 months to April 2006 to the 12 months to April 2007, there were an additional 1,791 incidents in the first of these two categories. During the same period there were an additional 181 incidents in the second category. Reclassifying these 1,972 incidents as assaults, would not account for the estimated increase in assaults reported by the ABS (16,000). The discrepancy between Police and ABS figures on assault, then, cannot be satisfactorily explained on the assumption that police are recording a higher proportion of assaults under these two categories.

THE PREVALENCE OF ASSAULT HAS RISEN BUT THIS HAS BEEN OFFSET BY A FALL IN THE NUMBER OF PEOPLE EXPERIENCING REPEATED ASSAULTS

The increase in assault reported in the ABS Crime and Safety Survey involved an increase in the prevalence of assault. That is, an increase in the percentage of NSW residents who experienced at least one assault over the preceding 12 months. Police figures reflect trends in the incidence of assaults, that is, the total number of new cases of assault, regardless of whether they involve new victims or the same victim assaulted a number of times over a 12-month period. One way to explain the discrepancy between Police and ABS figures is to suppose that the number of people assaulted once in any twelve-month period increased, but the number assaulted more than once during that period decreased by an equal amount.

Table 3 shows victims of assault by the number of incidents they experienced. The data are drawn from the ABS Crime and Safety Surveys. The estimated number of people who experienced one assault increased from 94,800 in 12 months to April 2006 to 124,900 in the 12

Table 3: Number of assaults experienced by victims, ABS Crime & Safety Survey

Time Period	No. of incidents			Total
	One ('000)	Two ('000)	Three or more ('000)	
May 2005 - April 2006	94.8	39.7	55.3	189.8
May 2006 - April 2007	124.9	51.9	64.6	241.4

months to April 2007, an increase of 32 percent. There was, however, no corresponding decline in the number of victims experiencing multiple assaults. The estimated number of people experiencing two assault incidents increased 31 percent, from 39,700 in the 12 months to April 2006, to 51,900 in the 12 months to April 2007. The estimated number experiencing three or more assaults increased by 17 percent, from 55,300 in the 12 months to April 2006, to 64,600 in the 12 months to April 2007. The discrepancy between NSW Police and ABS assault figures clearly cannot be explained in terms of changes in rates of repeat victimisation.

THE APPARENT INCREASE IN ASSAULT IS AN ARTEFACT OF CHANGES IN SURVEY METHODOLOGY

Changes in the methodology used to conduct and analyse a sample survey can have a significant effect on patterns of response. Changes to weighting procedures, sampling methodology, response rate and sample size all exert particularly strong effects.

Has the scope of the ABS Crime and Safety Survey changed?

Between 2006 and 2007 there was no change to the scope of the ABS Crime and Safety survey. For both years the survey was conducted using seven-eighths of the full sample of private dwellings in the monthly population survey (MPS). Only persons aged 15 years and over were surveyed.

Has the response rate to the ABS Crime and Safety Survey changed?

Response rates between the two years did not differ significantly. In the 2006 Crime and Safety survey the response rate was 79 percent and in the 2007 survey it was 74 percent. For both reference periods, investigations of responses indicated there was no significant non-response bias. The slight drop in response rates over that period has not made a significant impact in comparing the estimates from the two surveys.

Has the sample size used in the ABS Crime and Safety Survey changed?

As can be seen from Table 4, the sample size as a proportion of the population size is consistent over the two time periods indicating that there has not been any significant change in sample selection between the two reference periods.

Table 4: Population, sample size and proportion of sample to population, ABS Crime & Safety Survey

Region		2006	2007
Total Sydney	Sample	5,953	6,036
	Population	3,403,800	3,436,900
	Proportion	0.0017	0.0018
Rest of NSW	Sample	3,666	3,474
	Population	1,985,000	2,014,600
	Proportion	0.0018	0.0017
Total NSW	Sample	9,619	9,510
	Population	5,388,800	5,451,500
	Proportion	0.0018	0.0017

Has the weighting methodology changed?

The ABS applies different weights to respondents with different characteristics to compensate (among other things) for non-response. The weighting procedure used in 2006 was re-defined by the ABS in 2007 to incorporate previously separate non-response adjustments and to improve the representation of survey error. It is possible that this change had an impact on the estimated prevalence of assault.

To test this possibility, the ABS agreed to re-estimate the prevalence of crime victimisation in 2006, using the weightings employed in compiling the prevalence estimates for 2007. The results are shown below in Table 5.

Table 5: Comparison of 2006 ABS Crime and Safety assault estimates using old and new weighting methodologies

Methodology	Victims '000	Non-victims '000	Victimisation rate %
Original Weighting Method	189.7	5199.0	3.5
Revised Weighting Method	190.6	5198.2	3.5

It is clear from Table 5 that the change in the weighting method had no significant effect on the estimated number of victims of assault. Change in the weightings used in deriving prevalence estimates, therefore, cannot be the reason for the discrepancy between Police and ABS trends in assault.

THE APPARENT INCREASE IN ASSAULT IS A REFLECTION OF SAMPLING VARIABILITY

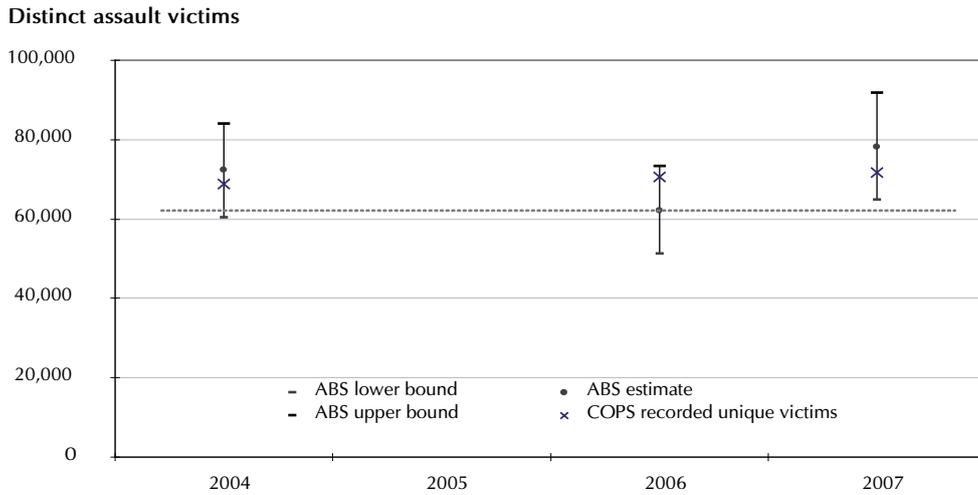
Chance variation will always ensure that two surveys with representative samples never produce identical results, even where both surveys are identical in methodology. Even very well conducted surveys, such as the ABS Crime and Safety Survey, are vulnerable to 'measurement error'. Statistical tests can be carried out to see whether a difference in results from two surveys could have come about by chance. A statistical test of the difference in assault prevalence between the 2006 and 2007 found it to be 'statistically significant'. This test, however, assumes that the 2006 value is accurate and asks whether the difference between the 2006 estimate and 2007 bounds² could have come about by chance. The test would not be valid if the assumption in question was false.

One way to test the accuracy of the 2006 ABS figure for assault is to compare the actual number of distinct victim³ assault incidents recorded by Police with the number of victims estimated to have reported to police by the ABS. No police service accepts each and every report of assault as genuine. The number of assaults recorded by police should therefore always be less than the number of assaults reported to them. If the ABS estimate of the prevalence of assault in 2006 was reliable, we would expect the ABS estimate of victims reporting to police to be higher than the number of distinct victims of assault actually recorded by the NSW Police. Examination of Figure 1 shows that this expectation is confirmed in 2004 and 2007 but it is not confirmed in 2006 (see Appendix 2). This suggests that the ABS estimate of the number of assaults in 2006 was too low and may have been an artefact of sampling (measurement) error⁴.

CONCLUSION

The most likely explanation for the discrepancy between NSW Police and ABS figures on assault is sampling variability in the NSW Crime and Safety Survey. The ABS estimate of the prevalence of assault in the 12 months to April 2006 appears (as a result of sampling variation) to have been too low. This created the false impression that the prevalence of assault had increased between 2006 and 2007 when, in fact, the true level of assault had remained stable.

Figure1: The estimated number of assault victims reported to police from the ABS Crime and Safety Survey (with 95% confidence bounds) versus the actual number of distinct assault victims recorded in COPS

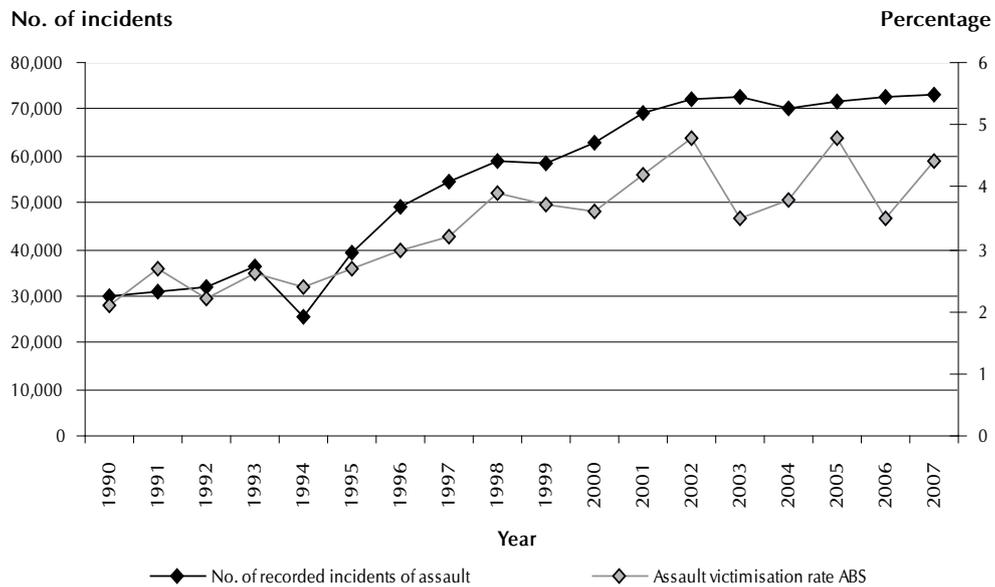


NOTES

- Each source of data has its strengths and weaknesses. Police crime statistics understate the true level of crime because many offences are not reported to police. As a result, changes in the number of crimes recorded by police sometimes reflect variations in the willingness of the public to report crime or police willingness to record it. Since the percentage of offences reported to and/or recorded by police does not generally change very rapidly over time, however, police statistics are quite useful in comparing crime rates between areas or examining trends in crime over time. The annual Crime and Safety Survey (a representative sample survey of NSW residents) gives a more reliable picture of the true volume of crime (both reported and unreported). It is also useful in judging whether there have been changes in the willingness of victims of crime to report crime to police. The principal weaknesses of the survey are that (a) it cannot be used to obtain information about crime across small areas (b) it cannot be used to measure information about crime where there is no obvious victim (e.g. drug offences) or where the victim cannot be interviewed (e.g. child victims) and (c) estimates of the prevalence of crime based on the survey are subject to sampling variation.
- As the 2007 ABS number of victims of assault is an estimate it is subject to sampling error. 95% confidence intervals were constructed around the 2007 estimate using +/- two standard errors to take this error into account.
- In order to get an accurate comparison between the COPS data and the ABS survey estimates it is necessary to limit both the ABS estimate and the COPS recorded assault victims to distinct or unique persons. That is, repeat victimisations from the ABS sample are not included and the COPS victims are limited to unique persons so that individuals are only counted once from both sources.
- According to statistical sampling theory interval estimates produced from a random sample point estimate +/- two standard errors should capture the population value in 19 out of 20 intervals obtained from the same method. That is, we expect one in 20 confidence intervals to fail to capture the population value.

APPENDIX 1

Number of incidents of assault recorded by NSW Police and the ABS Crime and Safety survey assault victimisation rate 1990-2007



APPENDIX 2

Although it is clear from Figure 1 that the number of distinct assault victims recorded by the NSW Police in COPS lies within the ABS confidence intervals, a further investigation of the total number of distinct victims including reported and non-reported incidents - reveals a problem.

Using the ABS 2007, 32.4% estimate of reporting to police we can extrapolate a COPS estimate of total distinct assault victims. The graph below shows that in 2006 the estimated number of distinct victims based on police data is not contained within the ABS total distinct victims confidence interval, unlike the 2004 and 2007 COPS projections. The NSW Police figures show more distinct victims than the survey.

Estimated number of assault victims in NSW (reported and non-reported) from ABS Crime and Safety Survey and COPS (with 95% CI bounds)

