

CHAPTER 3

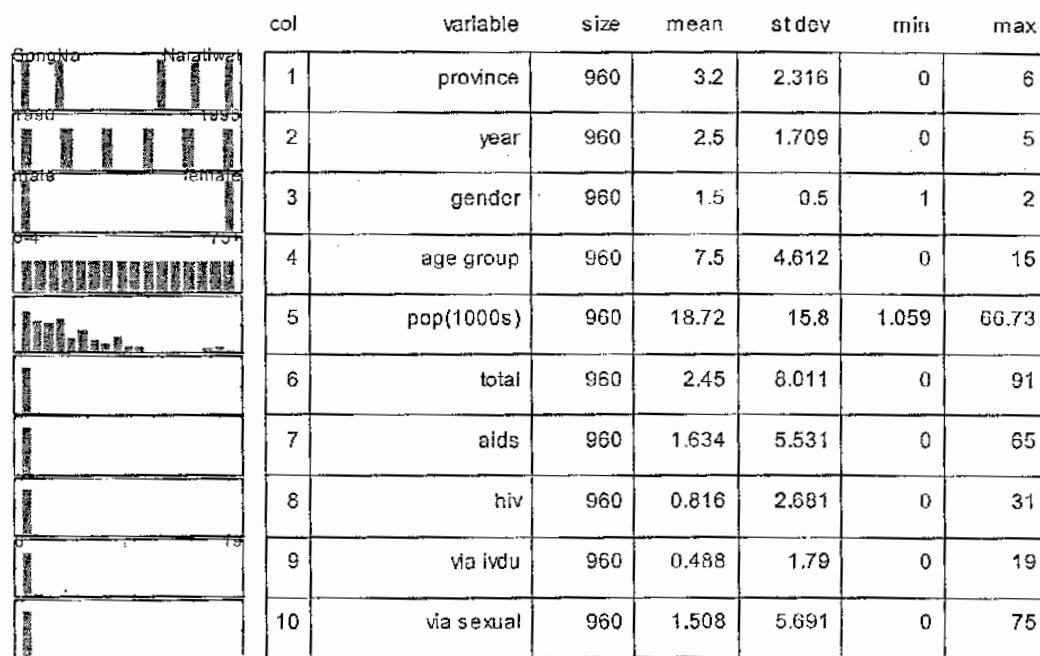
PRELIMINARY RESULTS

In this chapter numerical summaries of the data used for analysis are listed in Figure 3. and some preliminary results are presented.

First, the incidences of HIV/AIDS cases by province, gender, type of disease and method of transmission are plotted as shown in Figure 4-9. These plots show the pattern of the epidemic of HIV/AIDS in the five border provinces of Southern Thailand for each year during 1990-1996.

Second, crude odds ratios are plotted (Figure 10-12). These may be used to measure the strength of association, and to compare risks of HIV/AIDS infection, over different years and different provinces.

Finally, the possible confounding effect of age group is investigated. Comparison of the crude odds ratios with the age-adjusted odds ratio, using the Mantel - Haenszel method of adjustment, are shown in Table 6 and Table 7.



HIV/AIDS in 5 Thai southern border provinces: 1990-1996

Figure 3: Numerical summaries of data

The histograms and numerical summaries of the data presented in Figure 3 comprise the number of cases in the various categories (columns 6-10) by province, year, gender, age group, and population. There are thus 960 data records, corresponding to 5 provinces, by 6 years, 2 sexes, and 16 age groups. The coding for the data is as follows.

Province: 0=Songkhla, 1=Satun, 4=Pattani, 5=Yala, 6=Narathiwat

year: 0=1996, 1=1995, 2=1994, 3=1993, 4=1992, 5=1991

gender: 1=male, 2=female

age group: 0=0-4, 1=5-9, 2=10-14, 3=15-19, 4=20-24, 5=25-29, 6=30-34, 7=35-39, 8=40-44, 9=45-49, 10=50-54, 11=55-59, 12=60-64, 13=65-69, 14=70-74, 15=75+

The graphs on the following pages (Figures 3.2-3.7) show incidence rates for males and females, by year, province, type of disease, and methods of transmission.

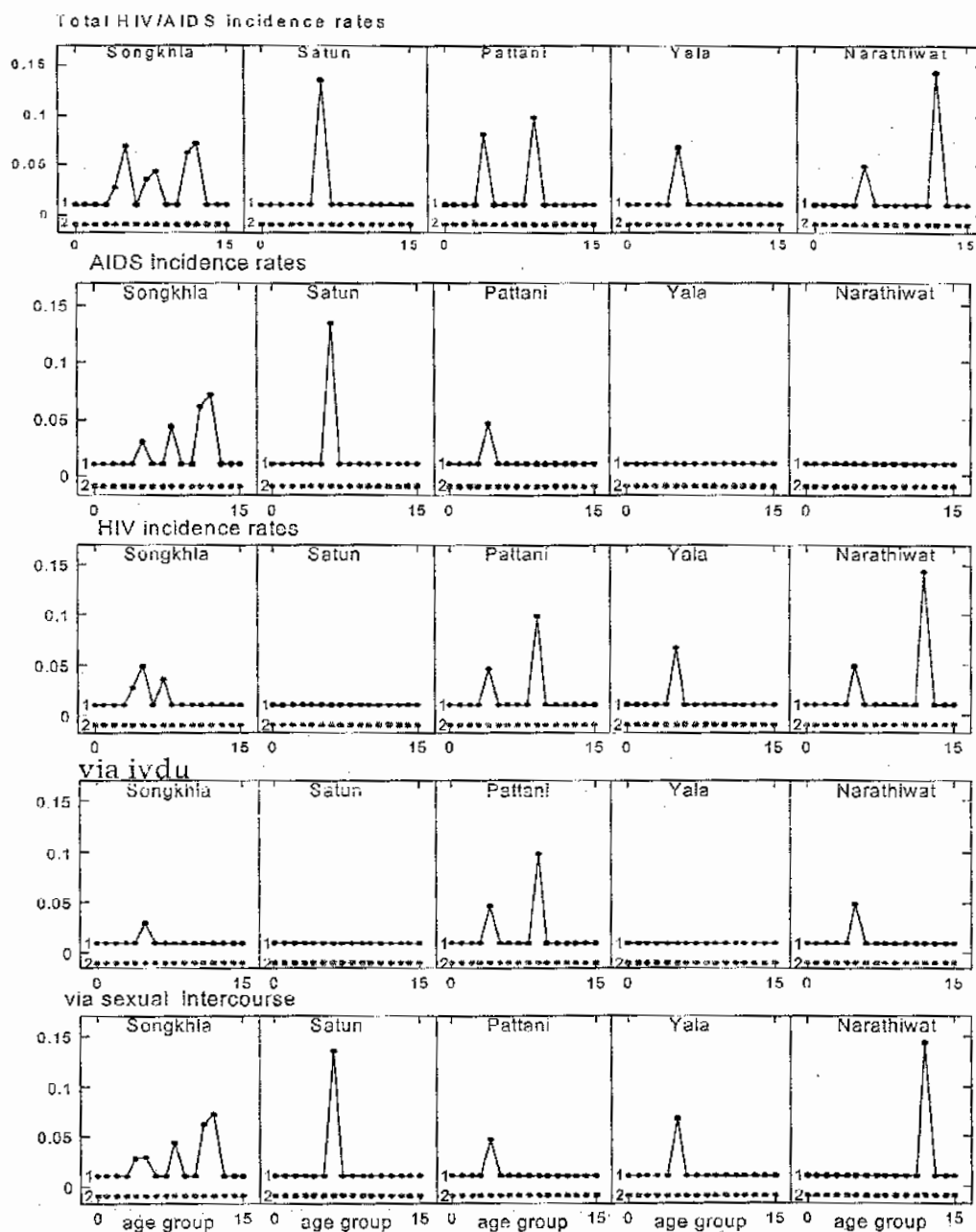


Figure 4: HIV/AIDS incidence/1000 in 1991 vs age group by province & gender (1=male, 2=female)

The graphs for 1991 show that there was no HIV/AIDS epidemic among females in these five provinces. The incidence rate of AIDS among male patients in Satun was highest in the age group 30-39 years. The incidence rate of HIV-infection was highest in Narathiwat among the older men. This pattern was different from the other provinces.

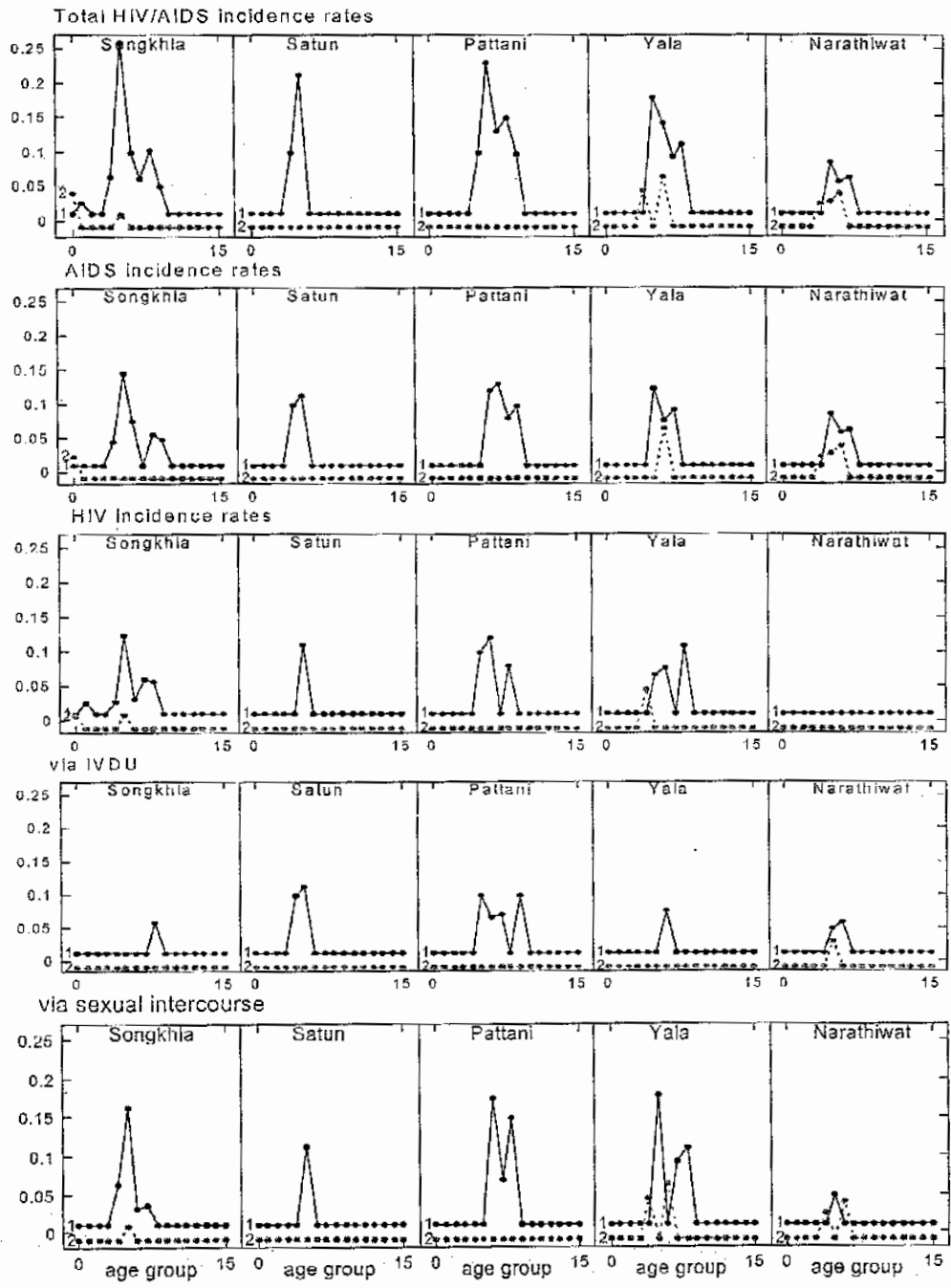


Figure 5: HIV/AIDS incidence/1000 in 1992 vs age group by province & gender (1=male, 2=female)

The graphs show that in 1992 the HIV/AIDS epidemic had spread to the female population in three provinces: Songkhla, Yala and Narathiwat. The highest incidence rates were found in the age group 25-29 years. Overall, the rates were lower in Narathiwat.

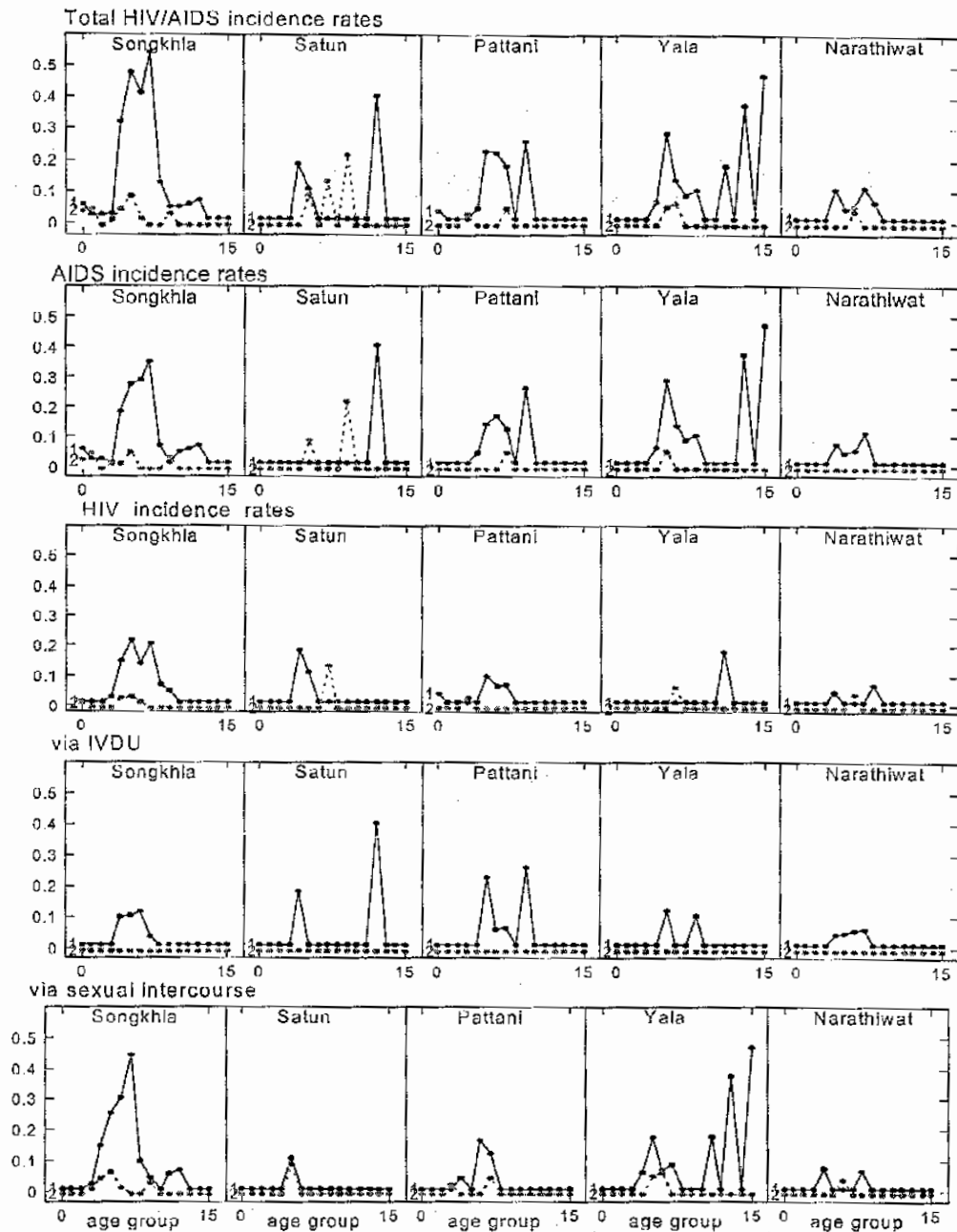


Figure 6: HIV/AIDS incidence/1000 in 1993 vs age group by province & gender (1=male, 2=female)

In 1993, there was a trend of increasing numbers of AIDS patients among males in many age groups. The incidence rate in Songkhla was highest in the age group 20-39 both for males and females. HIV/AIDS among the IVDU group was highest in Satun in the age group 35-59 years. The epidemic in Yala is different from the other provinces, having an increasing trend in the older age.

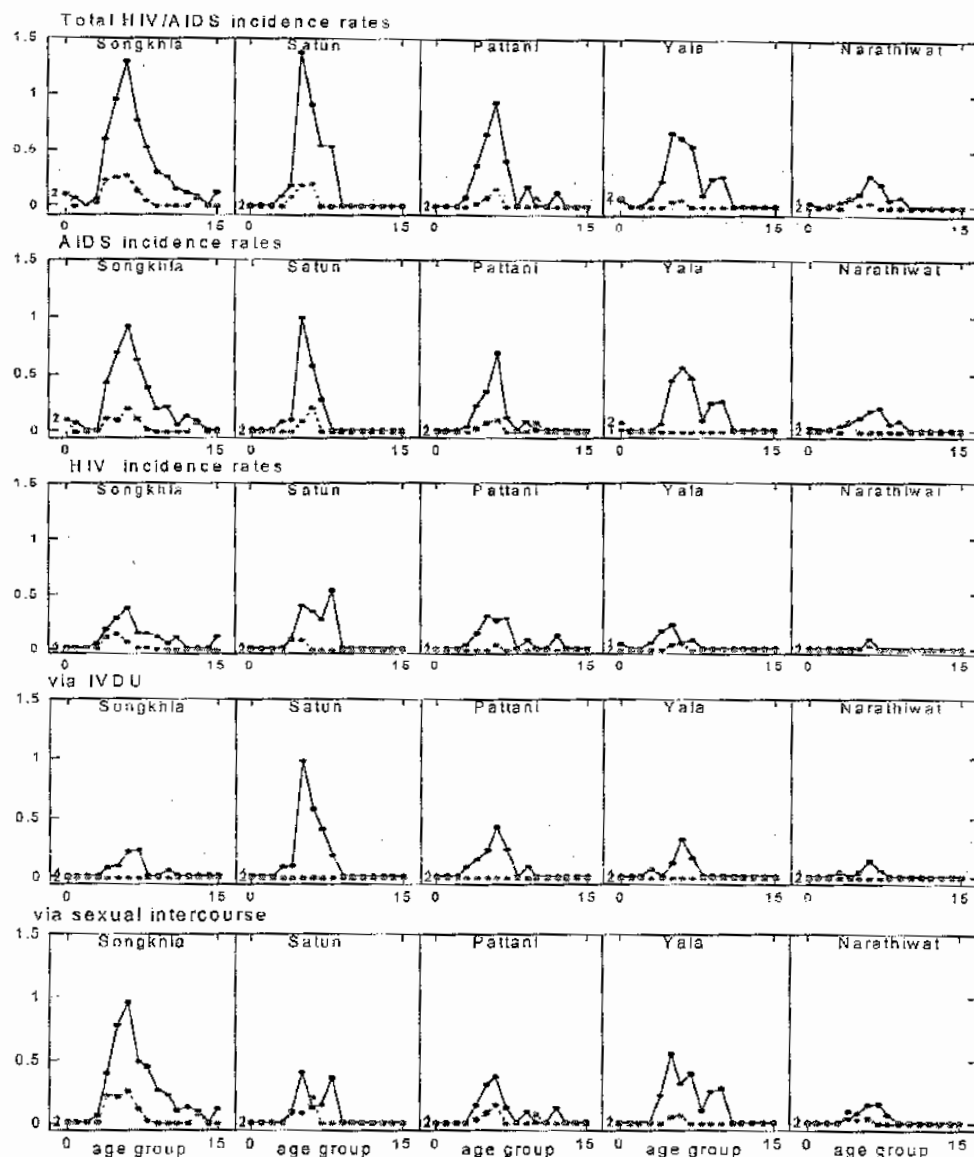


Figure 7: HIV/AIDS incidence/1000 in 1994 vs age group by province & gender (1=male, 2=female)

From these graphs, in 1994 the HIV/AIDS epidemic involved both males and females, and had spread to many age groups. The incidence rate of HIV/AIDS in male patients was more than in females. Satun and Songkhla had the highest rates among those age 25-34 years, followed by Pattani, Yala and Narathiwat. The epidemic of HIV/AIDS among the IV DU group was highest in Satun followed by Pattani, Yala and Songkhla. wide range of ages in the IV DU group was found in Pattani and Songkhla. HIV/AIDS infection by sexual intercourse was highest in Songkhla followed by Yala, Satun and Pattani.

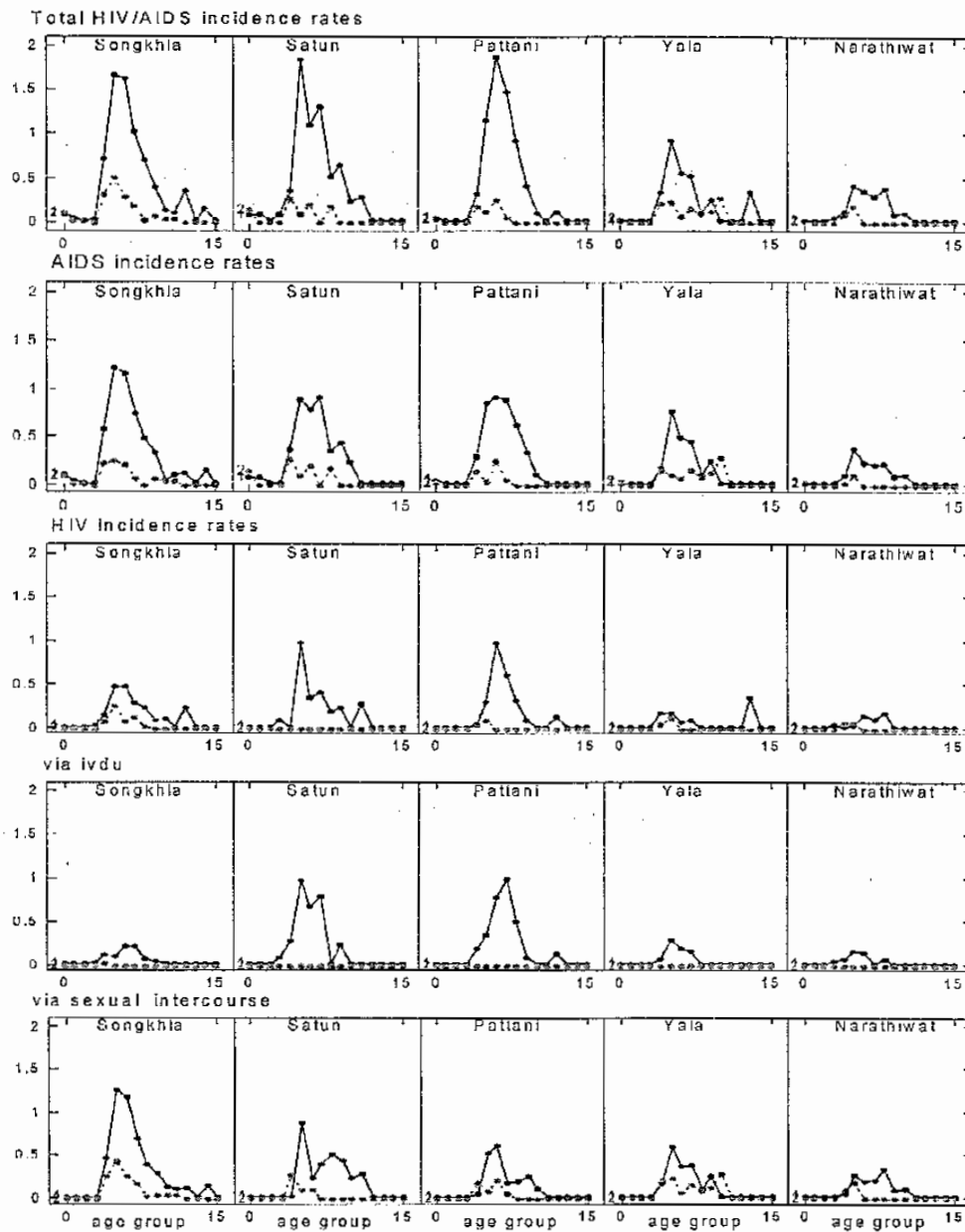


Figure 8: HIV/AIDS incidence/1000 in 1995 vs age group by province & gender (1=male, 2=female)

In 1995, the HIV/AIDS epidemic is a global in both males and females. This year had the highest incidence rate when compared to the past, the specially among males in three provinces, Songkhla, Satun and Pattani. And the AIDS infection had spread to the younger age groups. The epidemic of HIV/AIDS among the IVDU group was increasing in many age groups, particularly in Pattani and Satun. Futhermores, the HIV/AIDS infection by sexual intercourse was increasing in every province.

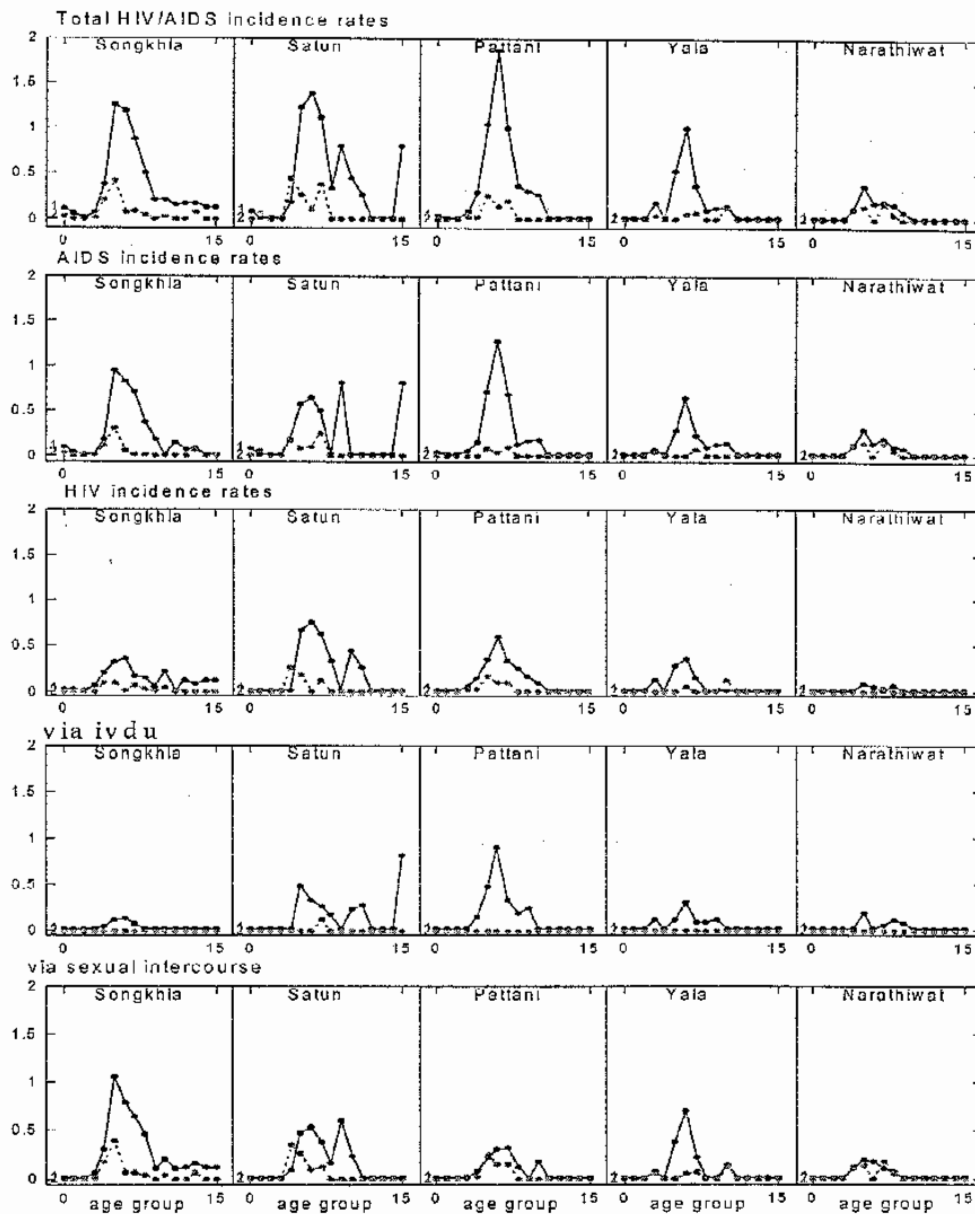


Figure 9: HIV/AIDS incidence/1000 in 1996 vs age group by province & gender (1=male, 2=female)

It can be seen that the HIV/AIDS incidence rate in Songkhla and Satun had decreased in 1996. But in Pattani province the HIV/AIDS epidemic is global in both males and females. Also, the AIDS infection had spread to the younger age groups. The epidemic of HIV/AIDS among the IVDU group was increasing in two provinces, Satun and Pattani. In addition the HIV/AIDS infection by sexual intercourse had increased in every province.

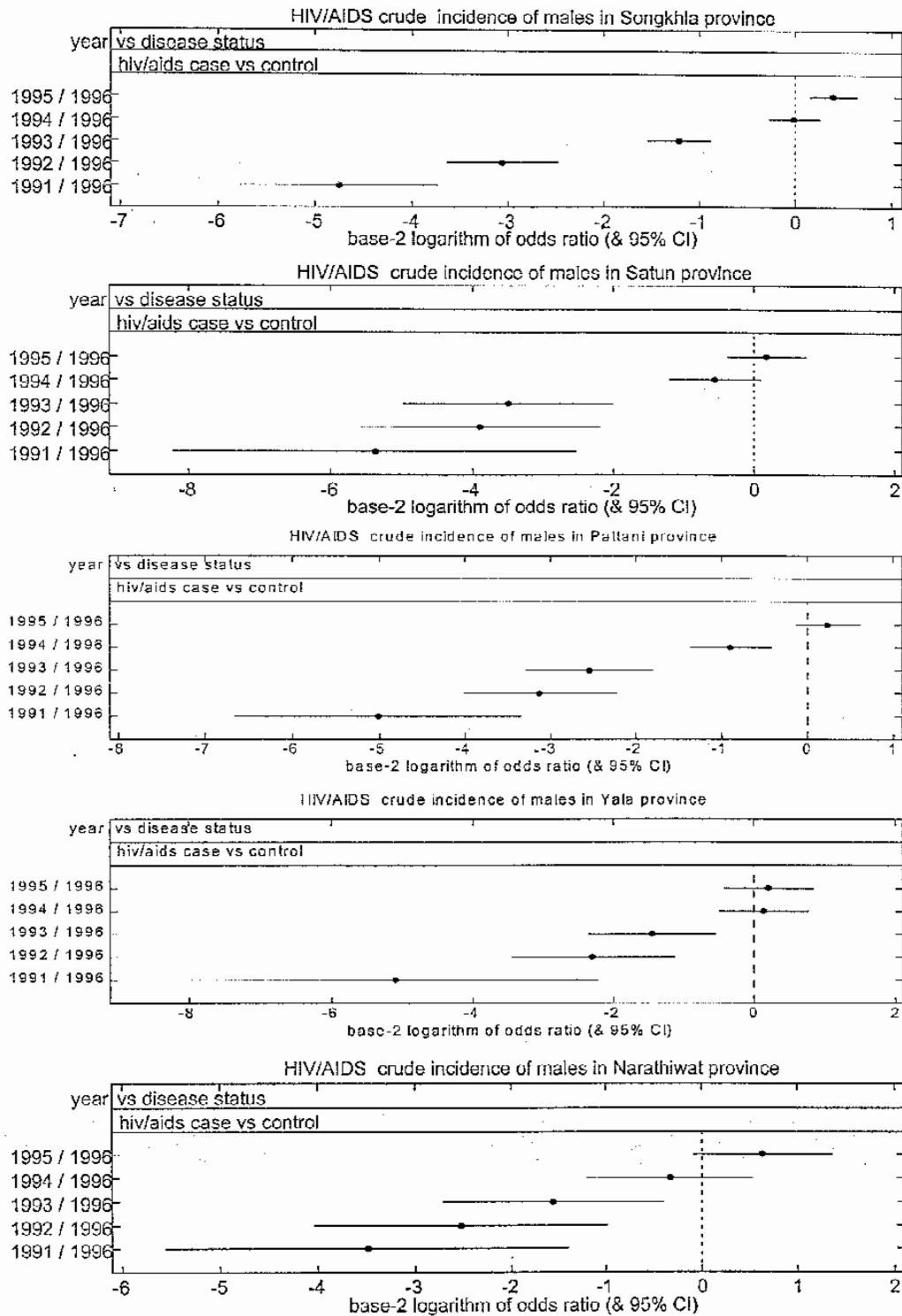


Figure 10: Plots of crude odds ratios for males in each province comparing the pattern of incidence in difference years, with year 1996 as baseline

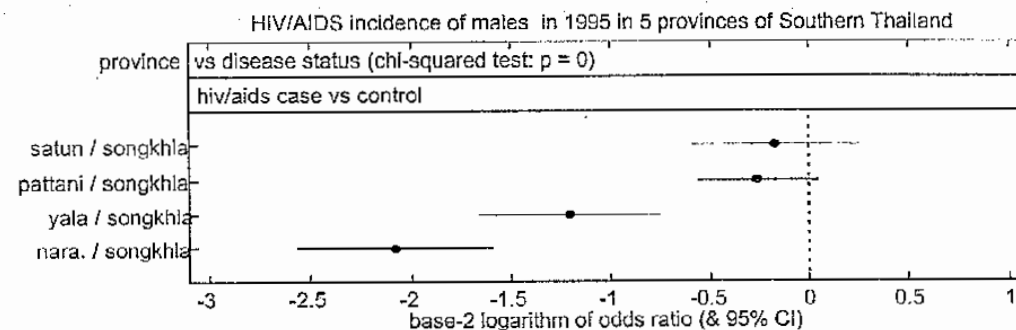
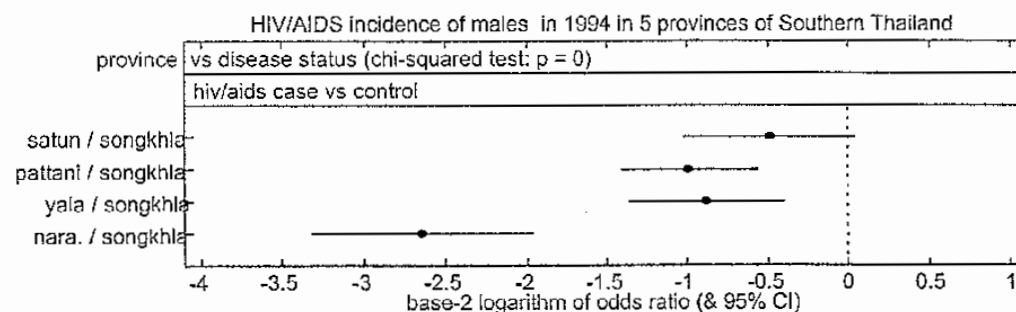
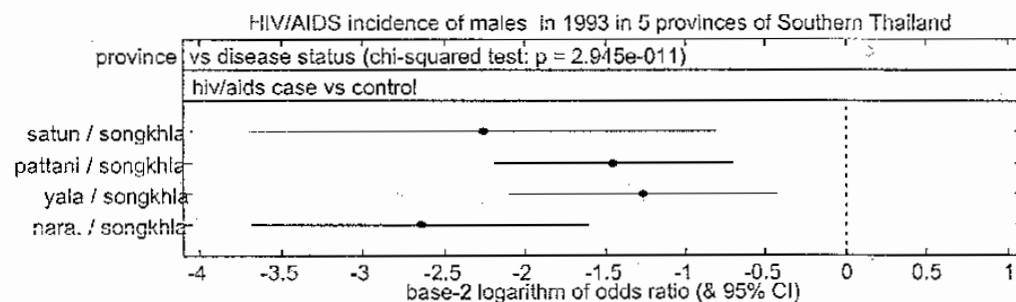
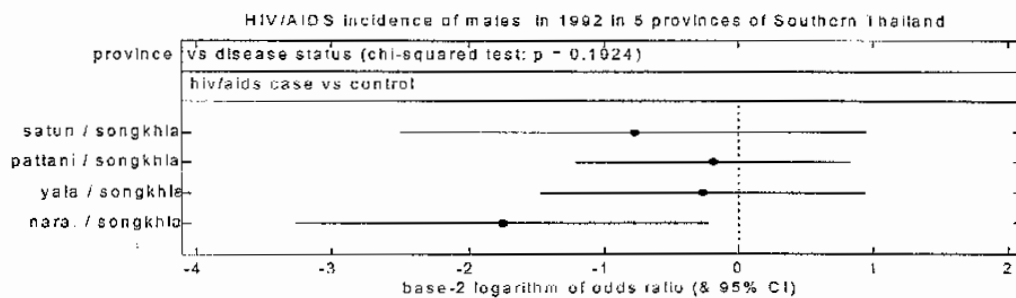
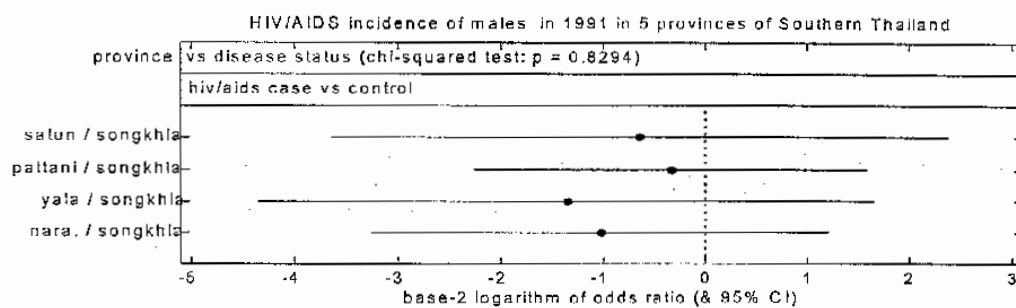
This graph shows the estimated odds ratios comparing the incidences for the different years. We selected 1996 as the reference year. We can see that the confidence intervals in each province are quite wide in some years. This is because the corresponding cell counts are small. The conclusions are as follows.

In Songkhla province, the odds ratios in the five strata are homogeneous. The odds ratios comparing the disease status in most years are statistically different from the reference year. The incidence of HIV/AIDS in males was increasing in 1995. In the year 1994 the incidence was close to that for the reference year while in the other years the incidences were lower than that for the reference year.

In Satun, the HIV/AIDS incidence in 1995 was found to be slightly different when compared with that in the reference year while those in other years were lower. However, the closeness between the confidence intervals for the odds ratios in 1992 and that in 1993 suggest that the incidences in 1992 and 1993 are similar.

In Pattani, the highest incidence was observed in 1995, where as the lowest incidence was in 1991. The increase in incidence pattern stabilise in 1992 and 1993, after the rapid had increased between 1993 and 1995.

In Yala, the pattern of incidences had increased in 1991-1993, and stabilised during 1994-1995, where the incidence was similar to that for reference year. In Narathiwat, the incidences in the reference year was the highest. In the other years they had increased from 1991 to 1996.



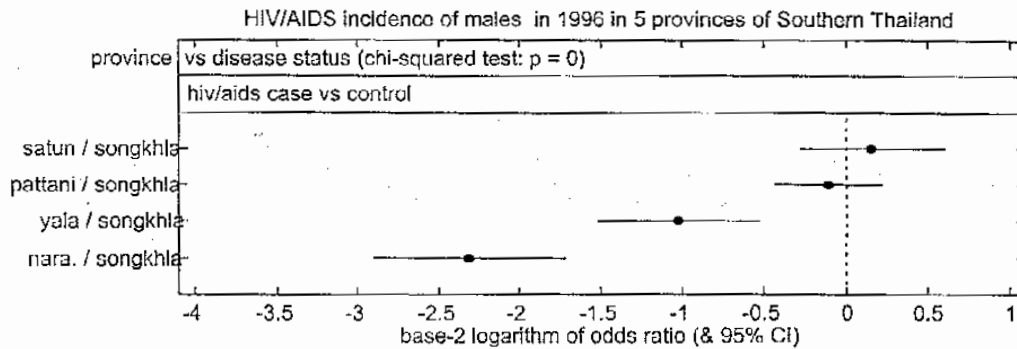


Figure 11: Plot of crude odds ratios for males in each year comparing pattern of incidences in different provinces, with Songkhla province as reference group

These graphs show clearly that the pattern of HIV/AIDS incidence in the five provinces has changed over the years. In 1991 no differences existed between the five provinces. However by 1993, Songkhla had a higher incidence than all of the other provinces. By 1994, Satun had caught up to Songkhla, and by 1995, Pattani had also joined Songkhla and Satun. This pattern persisted in 1996, with the epidemic occurring later in Yala and Narathiwat.

Table 6: Comparison of crude odds ratios with age-adjusted odds ratios for males

Province	year	crude odds ratio (OR)	adjusted OR for age group
Songkhla	1995/1996	1.3082	1.3150
	1994/1996	0.9829	0.9925
	1993/1996	0.4236	0.4296
	1992/1996	0.1161	0.1198
	1991/1996	0.0356	0.0369
Satun	1995/1996	1.0397	1.1357
	1994/1996	0.6264	0.6814
	1993/1996	0.0797	0.0884
	1992/1996	0.0609	0.0676
	1991/1996	0.0206	0.0241
Pattani	1995/1996	1.1774	1.1867
	1994/1996	0.5341	0.5388
	1993/1996	0.1677	0.1714
	1992/1996	0.1102	0.1149
	1991/1996	0.0305	0.0310
Yala	1995/1996	1.1493	1.1547
	1994/1996	1.0857	1.0972
	1993/1996	0.3588	0.3646
	1992/1996	0.1965	0.2028
	1991/1996	0.0285	0.0291
Narathiwat	1995/1996	1.5341	1.5539
	1994/1996	0.7787	0.7931
	1993/1996	0.3355	0.3400
	1992/1996	0.1705	0.1751
	1991/1996	0.0866	0.0896

From the table, It can be seen that the crude odds ratios and age-adjusted are only slightly different in value. This result indicates no confounding with respect to age.

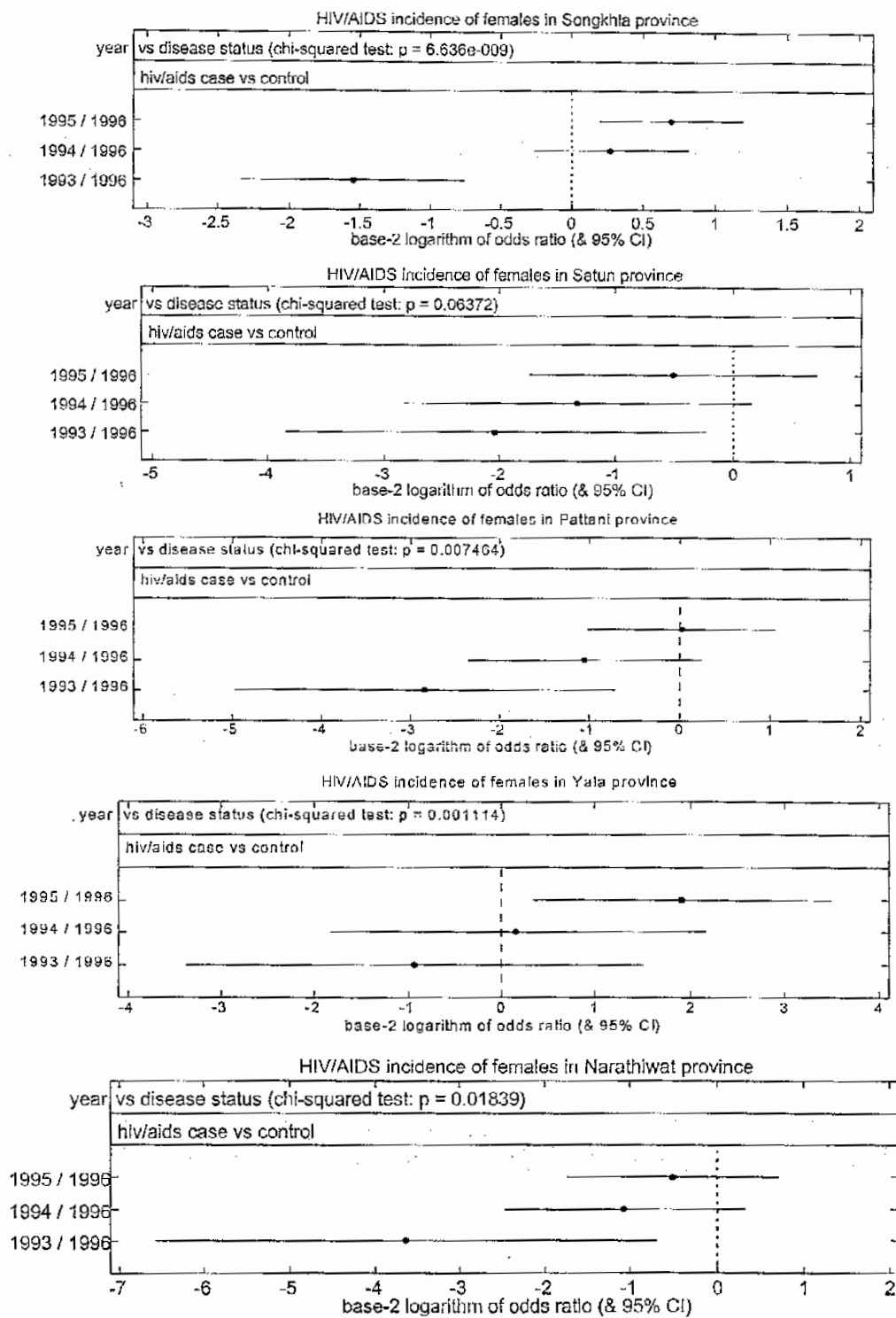


Figure 12: Plots of crude odds ratios for females in each province comparing the pattern of incidence in difference years, with year 1996 as baseline

In this graph we ignore the female cases in the years 1991 and 1992 because the numbers of cases are small. The results show that the pattern of the epidemic in females cases is different from the pattern of the epidemic in male cases.

In Songkhla, there was a rapid increase in 1994, 1995 and 1996. Satun, Yala and Narathiwat had a similar pattern, no different between the HIV/AIDS incidence of females in 1995 and that in the reference year was found.

Table 7: Comparison of crude odds ratios with age-adjusted odds ratios for females

Province	year	crude odds ratio (OR)	OR adjust for age group
Songkhla	1995/1996	1.6188	1.6206
	1994/1996	1.2080	1.2093
	1993/1996	0.3420	0.3409
Satun	1995/1996	0.7039	0.7039
	1994/1996	0.0379	0.3989
	1993/1996	0.2429	0.2472
Pattani	1995/1996	1.0139	1.0153
	1994/1996	0.4801	0.4820
	1993/1996	0.1393	0.1389
Yala	1995/1996	3.7727	3.6761
	1994/1996	1.1168	1.7010
	1993/1996	0.5237	0.5249
Narathiwat	1995/1996	0.7026	0.7039
	1994/1996	0.4756	0.4748
	1993/1996	0.0805	0.0818

From above table, it can be seen that the crude odds ratios and age-adjusted odds ratios for females are only slightly different in value. This result again indicates no confounding with respect to age.