Figure 4.3 shows plots of observed counts and observed mortality incidence rates per 1000 population versus corresponding fitted values obtained from Poisson models, left panels for males and right panels for females. It can be seen that the models fit the data quite well. Note that some observed counts were zeroes but not the expected counts.
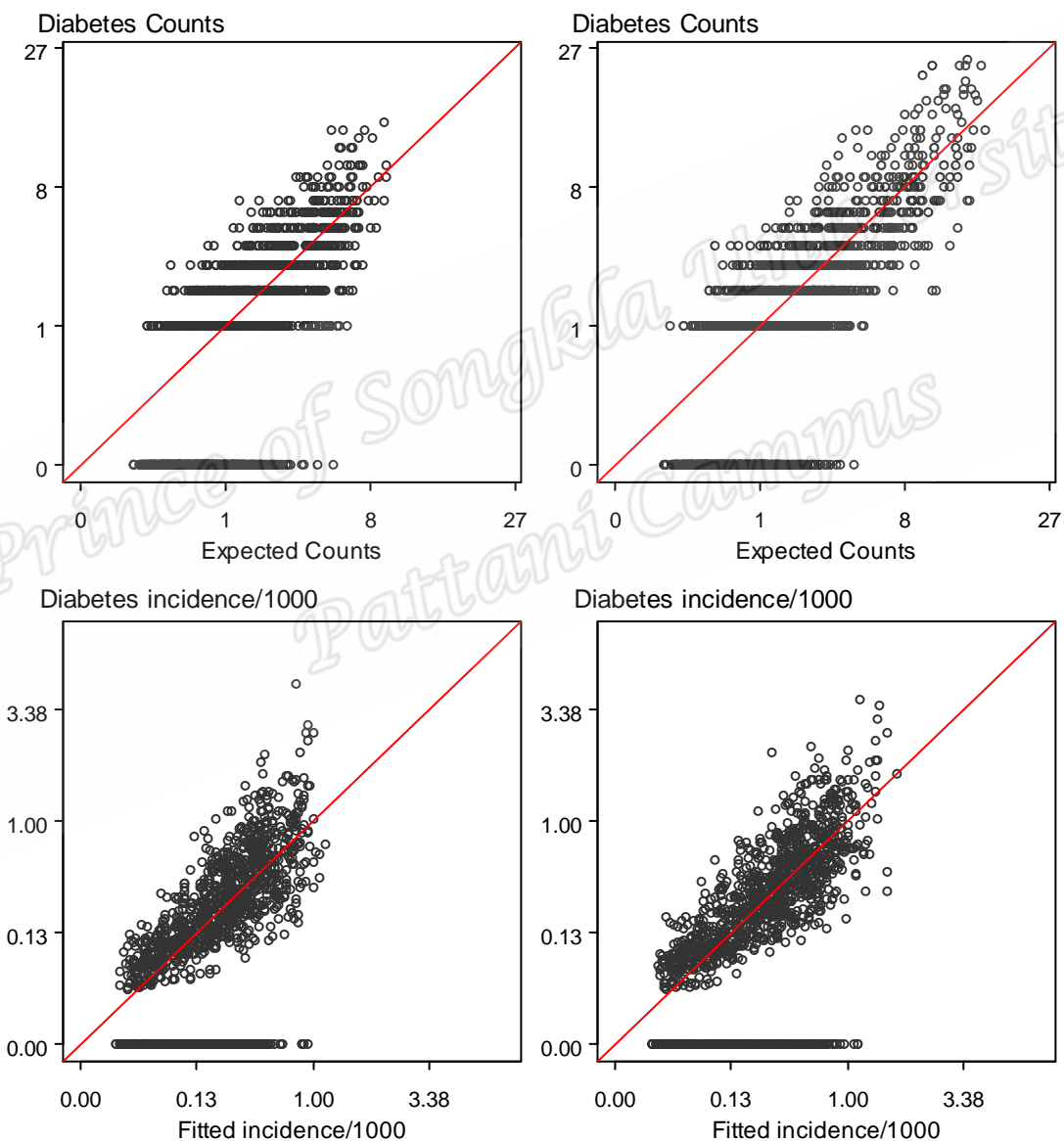

Figure 4.3: Plot of observed counts and observed incidence against fitted values

From the models the adjusted incidence rates for each factor of interest were obtained by replacing the parameters corresponding to the other factors by a constant chosen to ensure that the total expected number of cases equals the observed number. Sum contrasts were used to obtain confidence intervals in order to comparing the adjusted incidence rates within each factor with the overall incidence rate. We used this contrasts to create schematic maps of provinces according to their estimated diabetes mortality incidence rates.

Figures 4.4 and 4.5 show 95% confidence intervals of diabetes mortality incidence rates per 1,000 population by year (left panel), province (middle panel) and age (right panel) each adjusted for the effects of the other factors in the model. The dotted horizontal lines on each graph represent the overall mean incidence rates which are 0.14 and 0.18 per 1000 population for males and females respectively. The incidence rates by year for males and females have similar pattern but different in magnitude. The incidence rates decreased from 1996 to 1998 and increased from 1999 to 2001 and then decreased again after the year 2001.

The incidence rates by province are also similar for both males and females with peaks in Phuket province. The estimated were 0.24 and 0.36 per 1000 population for males and females respectively. The second peaks occurred in Narathiwat province with the estimated 0.23 and 0.28 per 1000 population for male and female.

The incidence rates by age in male and female have also similar patterns. They increased with age with peak of age 70-74 year.
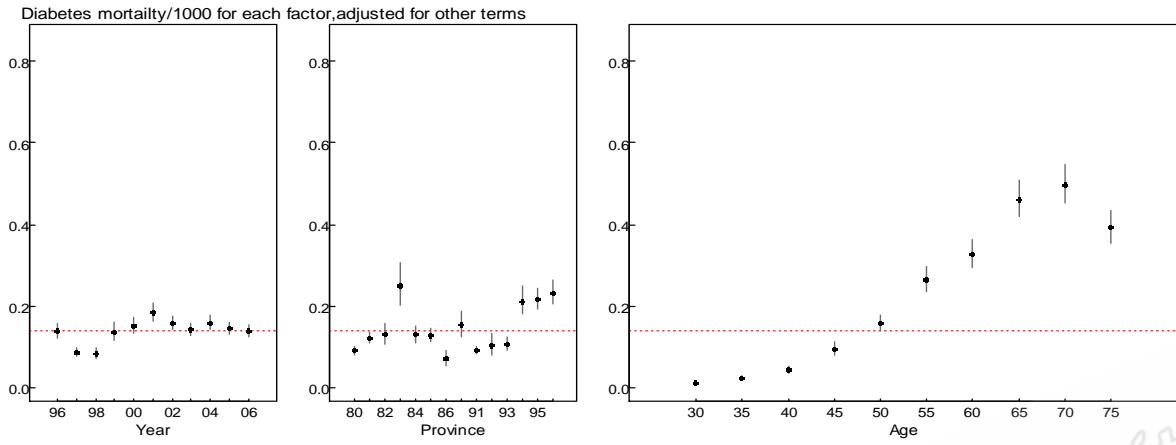
Diabetes mortailty/1000 for each factor,adjusted for other terms

Figure 4.4: *Male mortality incidence per1000 by each factor, adjusted for the other factors*

Diabetes mortality/1000 for each factor,adjusted for other terms
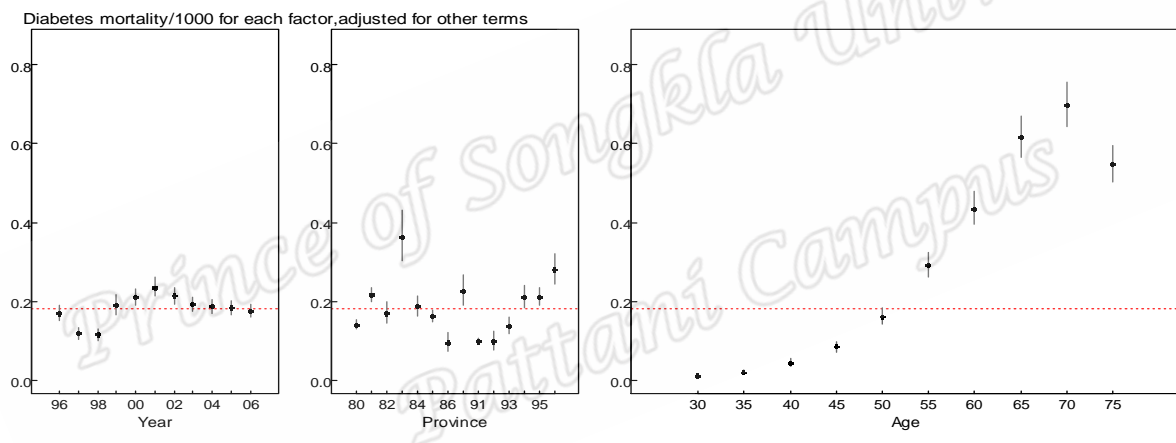
Figure 4.5: Female mortality incidence per1000 by each factor, adjusted for the other factors
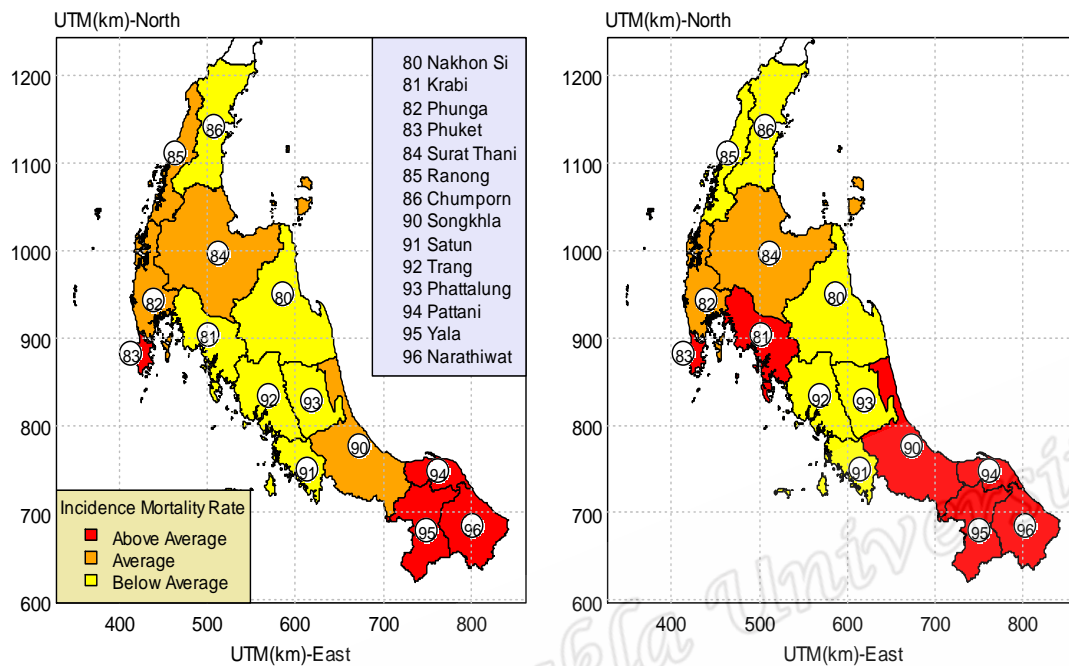
Figure 4.6: Schematic maps of diabetes mortality incidence rates(left plot for males and right for females)

Figure 4.6 shows schematic maps of the adjusted mortality incidence per 1000 by provinces, using the confidence intervals plotted in Figures 4.4 ad 4.5 to classify provinces as above the mean (red colour), below the mean (yellow colour) or not evidently different from the mean (orange colour). In the map, for males the above average mortality incidence rates occurred in Phuket, Pattani, Yala ad Narathiwat and for females they occurred in Krabi, Phuket, Songkla, Yala, Pattani and Narathiwat.