

Chapter 3

Preliminary Data Analysis

The preliminary data analyses were performed base on the records obtained from Pattani Hospital. The subjects investigated in this study sample comprised 221 twins. In this chapter, the frequency distributions of variables, prevalence of twin and proportion of fraternal and identical twins are presented and also the associations between these variables.

3.1 Description of the variables

The roles of the variables may be classified as determinants and outcomes. These variables and their roles and data types are listed in Table 3.1.

As Table 3.1 shows, there are 7 basic determinants. One of these determinants (religion) is binary, two (address, occupation) are nominal and four (parity, education, age of mother, fiscal year) are ordinal.

The outcomes of interest in this study are twin status and sex distribution, which were of binary data types.

Variable	Role	Type
Address	Determinant	Nominal (15)
Parity	Determinant	Nominal (3)
Fiscal year	Determinant	Ordinal (9)
Mother's occupation	Determinant	Nominal (4)
Mother's education	Determinant	Ordinal (4)
Age of mothers	Determinant	Ordinal (5)
Religion	Determinant	Binary
Sex distribution of twins	Outcome	Binary
Twin status	Outcome	Binary

Table 3.1: Variables and their roles and data types

3.2 Distribution of Determinants

Determinants		Percent	
		Twin (221)	Singleton (22,464)
Address	Bana	11.3	14.5
	City East	5.0	4.6
	City South	6.3	5.6
	City Centre	4.5	6.5
	Sabarang	8.1	6.9
	Anakru	5.4	6.1
	Rusamilae	4.5	6.9
	Yaring	13.6	10.3
	Nong Chik	12.2	7.7
	Khok Pho + Maelan	6.8	6.3
	Pattani East	8.6	5.4
	Yarang	3.2	3.6
	Pattani South	4.1	2.1
	Songkla	1.8	2.9
	Narathiwat+Yala+NS	4.5	4.8
	Parity	0	29.4
1		31.2	31.6
2+		39.4	31.6
Fiscal year	1997	13.1	11.1
	1998	7.7	10.5
	1999	7.7	10.3
	2000	12.7	10.4
	2001	9.1	11.0
	2002	12.2	11.5
	2003	14.0	11.6
	2004	13.1	11.6
	2005	10.4	12.0
Mother's occupation	Housewife	46.6	41.7
	Gardener or farmer	2.3	1.6
	Worker+	22.6	25.1
	Government office+	28.5	31.7
Mother's religion	Other	29.0	42.8
	Islam	71.0	57.2
Mother's education	Not stated	13.1	14.9
	Primary	40.7	32.9
	Secondary	21.7	24.6
	Other	24.4	27.6
Age of mother	<20	4.1	8.9
	20-24	21.3	24.9
	25-29	29.9	29.2
	30-34	30.3	22.6
	35+	14.5	14.4

Table 3.2: Distributions of demographic factors for twins and singletons

Table 3.2 shows the frequency distributions of twin and singletons. Of the mothers who had twins most were from Yaring (13.6%), while of those who had singletons most were from Bana (14.5%). Most mothers who had twins had had more than 2 parities (39.4%) but for mothers who had singleton it was frequently their first birth (0 parity 36.9%). The highest percent of twins was found in year 2003. Most of them were housewife (46.6% for twin and 41.7% for singleton). Of all the twins 71.0% was born to Muslim mothers and of all singletons 57.2% as born to Muslim mothers. For educational level, most of them were primary (40.7% for twin and 32.9% for singleton). The most common age category of mothers who had twins was 30-34 (30.3%). The most common age category of mothers who had singletons was 25-29 (29.2%).

3.3 Distribution of outcome variable

A. Sex distribution

There were 22,906 babies in this study. Among these, 221 births were twins, as shown in Table 3.3

Type of twins	Count	Percent
Same – sex	186	84.2
Opposite sex	35	15.8

Table 3.3: Distribution of sex of twins

The Table 3.3 shows the frequency distribution of twins. Most twins were same sex (84.2 %) and the rest were opposite sex.

B. Twin status

From 1 October 1996 to 30 September 2005, 19,126 mothers delivered 22,906 babies including 22,464 singletons and 221 twins as shown in Table 3.4.

Type of deliveries	Count	Percent
Singleton	22,464	99.0
Twin	221	1.0

Table 3.4: Distribution of twin status

The Table 3.4 shows the frequency distributions of live births. Most of the live births were singletons (99.0%) and the rest were twins.

3.4 Prevalence of twins

The prevalence of twins and the sex distribution is shown in Table 3.5

Type of twins	Number of twins	Prevalence per 1000	Proportion
Total twin pair (a + b)	221	9.7	
- Same sex (a)	186	8.2	0.84
- Opposite sex (b)	35	1.5	0.16
- Identical (total-2b)*	151	6.6	0.68
- Fraternal (2b)*	70	3.1	0.32

Table 3.5: prevalence of twins

The prevalence of twin was 9.7 per 1000 live births. The prevalence of same sex twins was 8.2 per 1000 live births. The estimated of fraternal twins was 3.1 per 1000 live births. The estimated of identical twins was two-third of all twins.

3.5 Association between twin status and determinants

The objective of twin status was to identify the demographic for twinning in Pattani Hospital. The study population included 22,464 mothers who had single births and 221 mothers who had twins. Table 3.6 shows the statistical significance of the associations between the outcome and the determinants. Since all of these variables are categorical, Pearson's chi-squared test may be used to give a *p*-value summarizing the statistical significance of the association in each case.

Determinants	Chi-square	Degree of freedom	<i>P</i> -value
Address	26.082	14	0.025
Parity	7.476	2	0.024
Fiscal year	7.889	8	0.444
Mother's occupation	3.112	3	0.375
Mother's education	6.088	3	0.107
Age of mothers	12.791	4	0.012
Religion	16.686	1	0.000

Table 3.6: Associations between twin status and determinants

Figure 3.1 shows the association between address and twin status, using an odds ratio plot. Compare to mothers from Bana, mothers from Nong Chick, Pattani East and Pattani South were more likely to have twins.

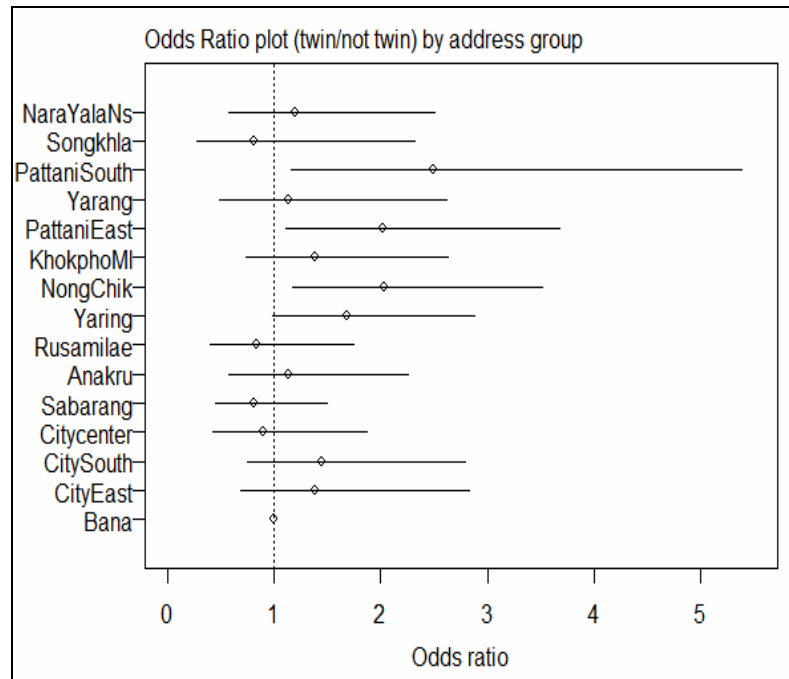


Figure 3.1: Association between address and twin status

Figure 3.2 shows the association between parity and twin status, using an odds ratio plot. The plot shows that mothers who never had babies (Parity = 0) were less likely to have twins and mothers with at least three parities were more likely to have twins.

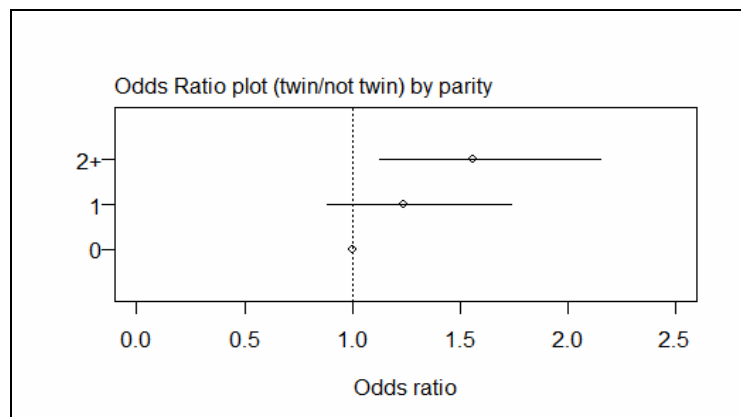


Figure 3.2: Association between parity and twin status

Figure 3.3 show the association between age of mother and twin status using an odds ratio plot. The plot shows that mothers aged less than 20 years were less likely to have twin and mothers aged 30-34 years were more likely to have twins.

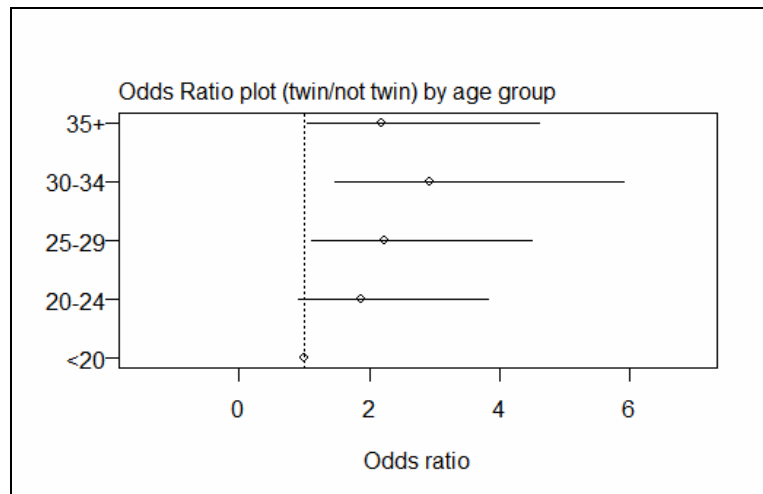


Figure 3.3: Association between age of mother and twin status

Figure 3.4 shows the association between religion and the twin status. Muslim mothers were more likely to have twins than were other mothers.

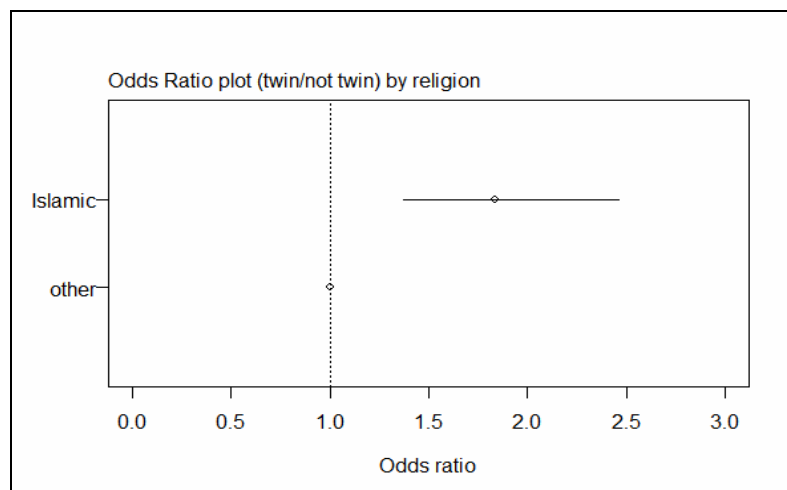


Figure 3.4: Association between religion and twin status

3.6 Association between sex distribution of twins and determinants

The objective of sex distribution study was to identify the factors associated with the sex distribution of twins in Pattani Hospital. The study population included 221 twins cases comprise 186 cases of same-sex and 35 cases of different sex. Table 3.7 shows the statistical significance of the associations between the outcome variable (twinning) and the determinants. The chi-square, degree of freedom and *p*-value are shown in this table. In this analysis age was regrouped as <25, 25-29, 30-34 and 35+ years.

Determinants	Chi-square	Degree of freedom	<i>P</i> -value
Address	19.940	14	0.132
Parity	1.211	2	0.546
Fiscal year	7.195	8	0.516
Mother's occupation	1.188	3	0.756
Mother's education	0.444	3	0.931
Age of mothers	0.509	3	0.917
Religion	0.021	1	0.882

Table 3.7: Associations between sex distribution of twins and determinants

From the Table 3.7, all determinants were not statistically significant associated with sex distribution of twins (*p*-value > 0.05).