A STUDY OF CERTAIN ASPECTS ON THE HEALTH CARE OF HIGH RISK PREGNANT MOTHERS IN TEMERLOH DISTRICT, PAHANG DARUL MAKMUR. JANUARY TO FEBRUARY 1992.

BY

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SUMMARY

The study was carried out to assesss the health care status of 148 high risk mothers, in Temerloh District, Pahang Darul Makmur.

This study revealed that there was still a number of unsafe deliveries (5.4%) amongst the high risk pregnant mothers despite the various strategies that had been implemented to ensure safe deliveries and reduce maternal mortality.

Preeclampsia, anaemia, overdue and history of postpartum haemorrhage were the commonest risk factors identified among the high risk mothers.

52.8% of mothers with primary education or without any education were of parity 5 and above, while only 13.2 % of mothers who had a minimum of lower secondary education had a parity of 5 and above. 37 % of the rural mothers had a parity of 5 and above, whereas only 20 % for mothers who were living in the urban areas, had a parity of 5 and above.

The average antenatal visit was 10.1 times and the average number of times the mothers were reviewed by the Medical Officer was 3.6 times.

48.1 % of the rural mothers made a total of 11 or more visits to the clinic, while only 20 % of the urban mothers had 11 or more visit.

Mothers with lower parity inclined to make more visits. 62.3 % of mothers with parity 0 - 2 had a total of 11 or more visits, compared to 35.4 % that of mothers with parity 5 and above. Only 2.7% of the mothers made their first antenatal visit at or before 12 weeks of gestation.

Home visits carried out by the health staffs after the risk factors were not satisfactory as only 43.2 % of the high risk mothers were visited.

2 out of the 148 mothers under studied were not given any advice for hospital delivery although they were identified to be from the high risk group. Only 73.7 % of the mothers had hospital deliveries. The study also reported that 98.7 % of the mothers were given domiciliary postnatal nursing care and the average number of postnatal visit was 4.7 times.

Mothers knowledge on the risk factors need to be improved in the future. 52.7 % of the mothers were able to identify 1 - 4 risk factors, 31.1 % identified 5 - 9 risk factors, 10.8 % identified

10 - 14 risk factors and only 5.4 % were able to identify 15 or more risk factors.

91.2 % of the mothers were advised to practise family planning by the health staff. Acceptance of family planning is still not very satisfactory, considering that the mothers are from the high risk groups.

Amongst the mothers studied only 73.7 % of the high risk mothers intend or had already practised family planning. Out of this, only 65.1% of these mothers arre using effective family planning method, while 12.2 % do not intend to practise any form of family planning.

Mothers play an important role in making decisions regarding the health care they get with some influence of others such as the health personnels, husbands and other family members.

Educational level is found to be one of the most important factor that has an influence on the health care of the high risk mothers followed by residence of mother and the monthly household income.

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INTRODUCTION

Every human being on this earth struggle to improve their quality of life and one of the basis to a better life is good health. In the developing world women and children comprise three-fourths of the population (1) and females of reproductive age group (15-49 years) represent 20% of the world's population (2).

Womens' and girls' health are needed because they contribute critically both to the family health and survival. Women's health needs differ from men's needs due to sex (biological differences) and gender. Women's biological capacity in terms of human reproduction have led to women being the most frequent users of health services. Gender needs on the other hand, emerge from the socially constructed roles ascribed to women (3). Women's contributions and productivity are visible not only in the infants they nurture, but in the food they grow, harvest and cook; in the variety of goods they produce and market; in the teaching and care of their children; in the many tasks they perform everyday to serve their families and communities.

Mothers during their pregnancy and delivery may face high risk situation which can lead to morbidity and mortality. Maternity care is thus essential in the promotion of maternal health and should cover care during pregnancy, labour, puerperium, care of the newborn and maintenance of lactation(4). Family planning is another important component of maternal health.

Increased use of effective contraceptive methods lowers the number of births. Number of women dying can be lowered by reducing the risk associated with pregnancy and the number of unwanted pregnancies through wider use of family planning.

It is estimated that 130 million births take place in the world annually, that is at a rate of about four births per second (5). World Fertility Survey estimates show that some 300 million couples around the world would like to postpone pregnancy or avoid it altogether, but have no access to family planning services. It is also estimated that maternal deaths in many developing countries would be reduced by 25% to 40% if all women in the world who explicitly say that they want no more children were using a contraceptive method effectively (6).

MATERNAL MORTALITY.

Maternal mortality in the developing world is a neglected tragedy. The World Health Organisation estimates that annually about half a million mothers die in the developing countries due to complications of pregnancy, abortion and childbirth. The maternal death rate in the developing countries is between 100 - 300 per 100,000 livebirths or more. This is very high when compared to the developed countries where the rate is only 2 - 9 per 100,000 livebirths (6).

The World Health Organisation estimates that a women in the developing world has an average lifetime risk of dying due to maternity-related causes

Table 1 : Maternal Mortality per 100,000 livebirth in selected countries.

Country	MMR (per 100,000 livebirths) Year		
	1966	1972	1982
Mauritus	108.1	176.4	90
Canada	34.8	15.5	2
Chile	239.4	178.5	55 (1983)
Cuba	-	58 (1974)	56
Hongkong	43.3	19.9	1
Japan	93.3	40.6	15 (1983)
Thailand	298.2	222.4	81 (1981)
Philippines	-	131 (1971)	90 (1983)
Portugal	83.1	55.0	22
Singapore	-	21 (1971)	5 (1981)
Sweden	11.3	7.1	4

Source : World health Statistics Report, Vol 22, No. 6 (1969)

World Health Statistics Annual , Vol 1 (1972)

Vital Statistics and Cause of Death, Geneva WHO (1975)

Maternal Mortality Rates : A tabulation of Available Information , WHO (1986)

150 to 300 times higher than those from developed countries (6, 7, 8). Table 1 illustrates the disparity between some selected developed and developing countries.

In United States, although the MMR had continued to decline, it was noted that the MMR among the black mothers had increased sharply between 1980 to1985. The ratio between the white and black mothers in 1985 was almost 1 : 4 favouring the white mothers. Besides that, it was also noted that older mothers (more than 40 years old) have 2 - 5 times the risk of younger mother. In 1985, the reduction in MMR in United States was due to the fact that 99.0% of the deliveries were instutionalised births of which 96.7% were attended by physicians, compared to 88.0% hospital and 55.8% hospital deliveries in 1950 and 1940 respectively (9).

An analysis of maternal mortality in Sweden from 1945 -1980 showed that the reduction in maternal mortality was caused by a decrease in maternal age and this was represented by a J-shape curve (10).

In the United Kingdom, the maternal mortality rate also had decreased tremendously. Maternal mortality rate in United Kingdom for the past few decades are shown in Table 3 . It was reported that maternal mortality was closely related to maternal age and parity. MMR was highest among those in the 40 year age group and above and parity of 5 and above and lowest in the 20 - 24 year age group with parity of 2 and 3 (11).

Table 2 : MMR in UNITED KINGDOM 1955 - 1987

Year	MMR (per 100,000 LB)
1955 - 1957	67.1
1964 - 1966	33.3
1973 -1975	18.2
1982 -1984	9.3
1985 -1987	7.6

Source : Report on Confidential Enquiries into Maternal Deaths in United Kingdom 1985 -1987

MMR in Africa is the highest in the world with rates of up to 1,000 per 100,000 livebirths . A study carried out in 4 Gambian villages between 1982 and1983 showed that MMR is more than 2,000 per 100,000 livebirths (12).

In 1972, the Danfa project in Ghana estimated that the MMR is about 400 per 100,000 livebirths (13) and a study in rural area in Sine-Saloum, Senegal in 1962 - 1982 showed a rate of 700 per 100,000 livebirths. In Africa, the high MMR are compounded by high fertility where the average number of livebirth per woman is 6.4 (14).

A study on maternal death in Jamaica in 1986 - 1987, showed an incidence rate of 11.5 per 10,000 livebirth. Hypertension was the major cause of death
followed by haemorrhage and infection. The risk of maternal death was lowest in areas with access to a specialist hospital and highest in areas with no obstetricians. There was also an increase in the number of maternal deaths with advanced maternal age and high parity (15).

A study in Saudi Arabia indicated that age and educational level of mothers were some of the factors that influenced the choice of the place of delivery (16).

Southern Asia also had a very high mortality rate. Studies in Bangladesh found rates of approximately 600 per 100,000 livebirth (17). In rural

Andra Pradesh, India, a 1984 - 1985 study found a rate of 874 per 100,000 livebirth (18). South Asia with its dense population and high mortality rates

accounts for 59 % of world's maternal deaths and 41 % of the world's birth. The MMR in Hong Kong and Singapore was almost the same as the developed countries that was 6 per 100,000 and 11 per 100,000 respectively (7). Malaysia reported a MMR of 0.20 per 1,000 livebirths in 1989 (19).

In Japan, Maternal Mortality Rate and Infant Mortality Rate had decreased tremendously during the past few decades as seen in Table 2. Most of the improvement were due to the fact that in Japan, all deliveries were safe deliveries. In 1989, 97.8% were conducted by physician and only 2.1% by midwives. Out of this, 55.8% took place in hospitals, 42.9% in clinics, 1.2 % in maternity homes and only 0.1% took place at home (20).

Another study conducted at Tsan Yuk Hospital, Hong Kong regarding maternal deaths that occured between 1945 to 1983 showed that, there were changes in trends in the cause of maternal deaths in major referal hospitals during the period of 39 years. Incidence of maternal deaths due to haemorrhage, infection and preeclampsia/eclampsia had shown a significant decline. The study also indicated that maternal age and parity were also factors which were associated with maternal deaths (21).

A study on maternal mortality amongst the rural malays in West Malaysia in 1969, showed that the incidence of maternal death was highest among the malays. The reasons that contributed to this high mortality was that many of these mothers live in the rural areas where provision of medical services and trained manpower was inadequate and poor (22).

Table 3 : MATERNAL and INFANT MORTALITY RATE IN JAPAN.

YEAR	IMR (per 1,000 LB)	MMR (per 100,000 LB)
1900	155.0	436.5
1910	161.2	363.6
1920	165.7	353.4
1930	124.1	272.5
1940	90.0	239.6
1950	60.1	176.1
1960	30.7	130.6
1965	18.5	87.6
1970	13.1	52.1
1975	10.0	28.7
1980	7.5	(18.5) 20.5
1985	5.5	(13.7) 15.8
1986	5.2	(11.8) 13.5
1987	5.0	(10.5) 12.0
1988	4.8	(8.1) 9.6
1989	4.6	(9.4) 10.8
1990	4.6	(7.2) 8.5

Source : Maternal and Child Health Statistics of Japan, MCH division, Children and Families Bureau, Ministry of Health and Welfare , Japan 1991.

No. in ( ) are direct obstetric deaths listed separately.

A Malaysian Population and Family Survey conducted in 1984 -1985 showed that only 7% of women started their first antenatal visit during the first trimester. The educated mothers and those living in urban areas attended the antenatal check up much earlier. It was also noted that the risk of pregnancy complications is associated with increase in age (23).

In Malaysia, the MMR had shown a decreasing trend . The causes of maternal deaths had changed over the years. In 1984, the major causes of maternal deaths was post partum haemorrhage and retained placenta followed by preclampsia and eclampsia (24). However in 1989 the leading cause of death was related of medical conditions followed by puerperal sepsis and Septicaemia (25) as seen in Tables 4 and 5 .

Table 4 : Maternal Mortality Rate (per 1,000 livebirths) by state in Malaysia 1989.

State	MMR (per 1,000 livebirths)
P. Malaysia	0.20
Perlis	0.21
Kedah	0.17
Pulau Pinang	0.05
Perak	0.26
Selangor	0.13
Negri Sembilan	0.06
Melaka	0.00
Johor	0.20
Pahang	0.53
Trengganu	0.19
Kelantan	0.25
Sabah	0.25
Sarawak	0.12

Source : Information and Documentation System Unit, Ministry of Health Malaysia , 1991.

Table 5 : Major causes of Maternal Death in Malaysia 1984 and 1989.

Causes of death	No. of cases	
	1984	1989
PPH and Retained Placenta	46	13
PET and Eclampsia	39	11
PPH	38	14
Embolism (pulmonary, amniotic, cerebral)	22	24
Other causes	20	14
Unknown	14	11
Causes related to medical condition	13	23
Causes related to heart condition	11	19
APH	8	5
Post Partum Infection/Septicaemia	6	21
Abortion	3	2
Total	218	157

Source : Annual Report 1983/84 , Ministry of Health Malaysia

Annual Report 1989 , Ministry of Health Malaysia.

OBJECTIVES

GENERAL OBJECTIVE.

1. To study some factors affecting the health of high risk pregnant mothers in relation to their socio-economic status.

SPECIFIC OBJECTIVE.

1. To describe the demographic profile of high risk pregnant mothers in relation to their socio-economic factors such as age, education, occupation, ethnic group, household income, place of residence, age at first marriage and first childbirth, parity, birth interval and type of family structure.
2. To analyse age of mother at first marriage and birth of first child in relation to education and ethnic group of mother.
3. To observe the relation between gestational period at first antenatal and the number of antenatal visit in relation to socio-economic status.
4. To describe the common risk factors identified in the high risk pregnant mothers.
5. To determine the number of referal and admission of high risk pregnant mothers to hospitals.
6. To describe the reasons for refusal for hospital admission among high pregnant risk mothers.
7. To determine the percentage of hospital and home deliveries among high risk pregnant mothers.
8. To compare the place of delivery with socio-economic factors and demographic profile.

9. To find out reasons for choice of place of delivery and personnel who conducted the delivery for the high risk pregnant mothers.
10. To describe the availability of public transport and the type of transport used by mothers to visit the health facilities.
11. To describe mother's opinion regarding hospital and ambulance services.
12. To determine the percentage of mothers receiving postnatal nursing care and the number of postnatal visits done by the health staff.
13. To assess mother's knowledge regarding high risk factors in association with mother's socio-economic background.
14. To describe the acceptance of family planning and type of methods used by high risk pregnant mothers in relation to their socio-economic status.
15. To formulate recommendations and proposals to further improve the health status of high risk pregnant mothers in the district.

PROFILE OF THE STUDY AREA AND POPULATION.

A. THE STUDY AREA.

1. Geographic location.

Temerloh health district is one of the largest district in the state of Pahang. Temerloh health District comprises of two administrative districts namely Temerloh and West Maran. It covers a total land area of 587,200 hectares with 15 Mukims and 342 'kampungs' (villages). In addition, it has 56 Orang Asli (aborigines) settlement with a population of 5,738 people who are scattered in the remote areas of the district. Their welfare are under the Department of Aborigines Affairs, Ministry of Home Affairs .

Temerloh has a tropical climate as in other parts of Malaysia. It has two seasons, wet from November till March and fairly dry through out the rest of the year. During the monsoon season, some parts of the district are affected by the floods especially the areas along the Pahang River and its tributaries. The average annual rainfall is 20.3 cm and the average temperature is 27°C.

2. Administrative profile

The district is administered by the Temerloh District office headed by the District Officer who is responsible for all the administrative matters. The major towns in the district are administered by the local authorities, whereas the land development schemes are managed by statuory

FIGURE 1 : MAP OF PENINSULAR MALAYSIA
SHOWING STUDY AREA

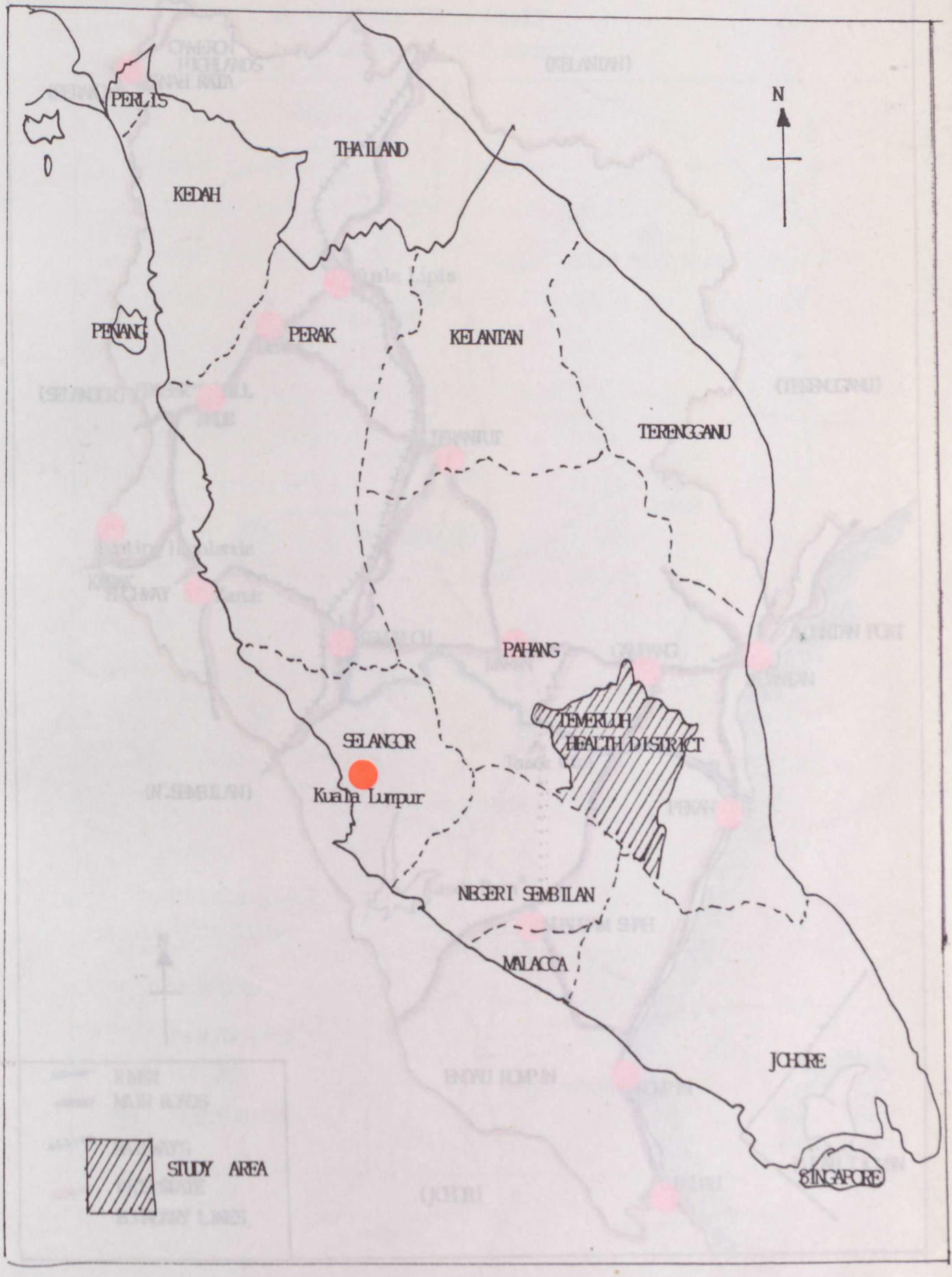


FIGURE 2 : MAP OF PAHANG STATE

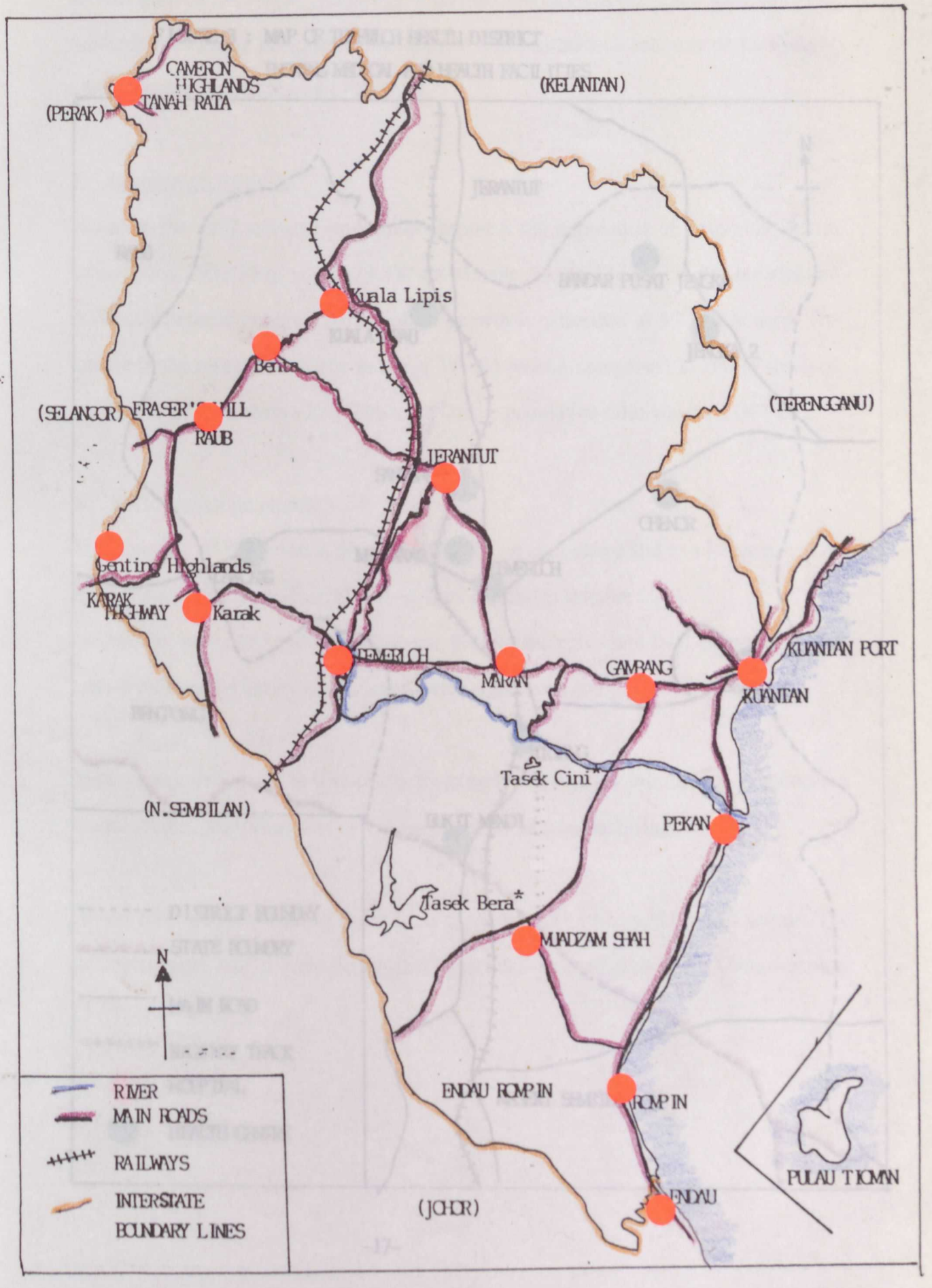
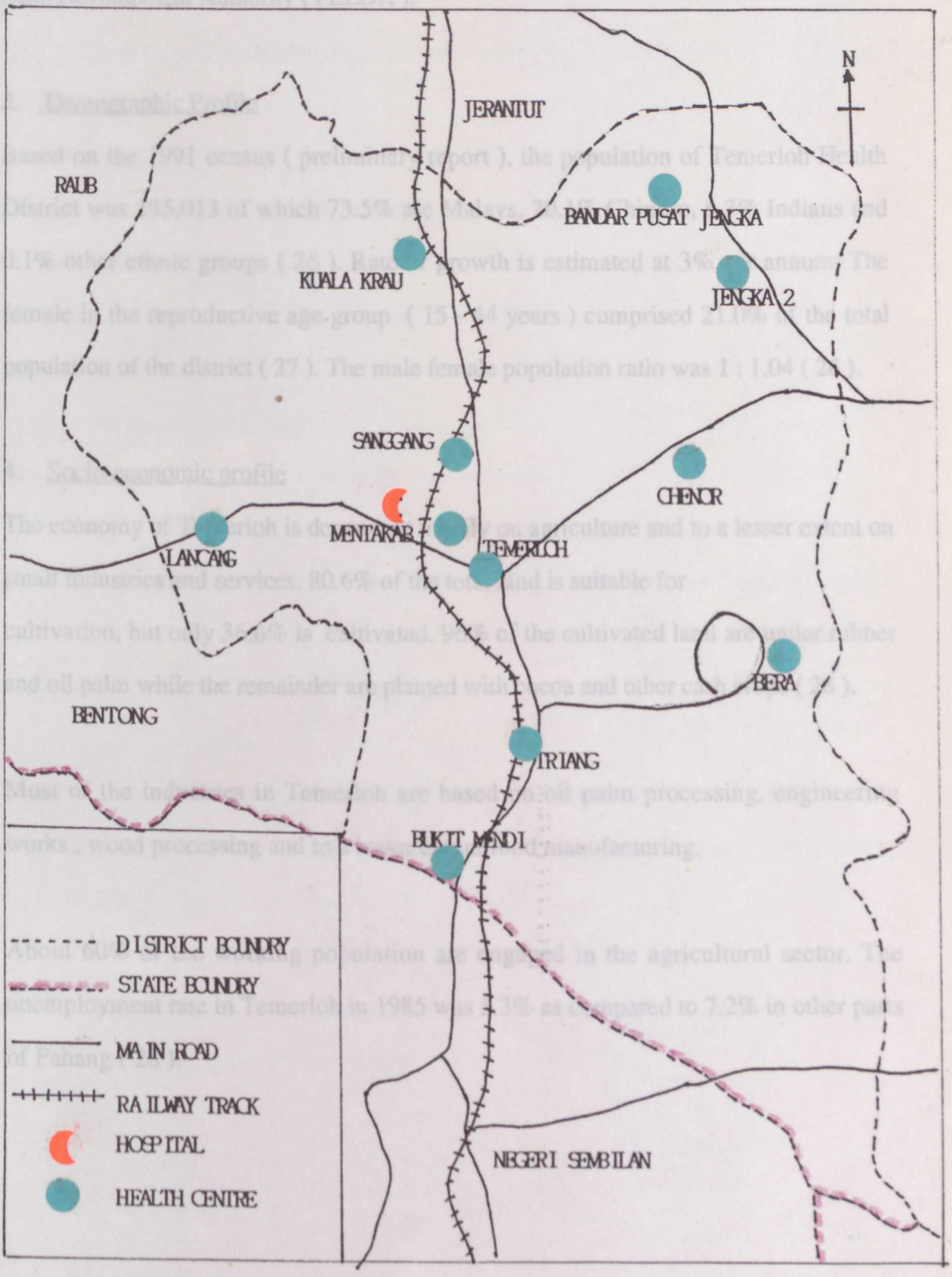


FIGURE 3 : MAP OF TEMERLOH HEALTH DISTRICT
SHOWING MEDICAL AND HEALTH FACILITIES



bodies such as Lembaga Kemajuan Wilayah Jengka (LKWJ) and Development Authority of Pahang Tenggara (DARA) and also various land schemes under Federal Land Development Authority (FELDA).

3. Demographic Profile

Based on the 1991 census (preliminary report), the population of Temerloh Health District was 295,013 of which 73.5% are Malays, 20.1% Chinese, 6.3% Indians and 0.1% other ethnic groups (26). Rate of growth is estimated at 3% per annum. The female in the reproductive age group (15 - 44 years) comprised 21.0% of the total population of the district (27). The male female population ratio was 1 : 1.04 (26).

4. Socio-economic profile

The economy of Temerloh is dependent mainly on agriculture and to a lesser extent on small industries and services. 80.6% of the total land is suitable for cultivation, but only 36.6% is cultivated. 96% of the cultivated land are under rubber and oil palm while the remainder are planted with cocoa and other cash crops (28).

Most of the industries in Temerloh are based on oil palm processing, engineering works , wood processing and to a lesser extent food manufacturing.

About 60% of the working population are engaged in the agricultural sector. The unemployment rate in Temerloh in 1985 was 5.3% as compared to 7.2% in other parts of Pahang (28).

The poverty rate for Temerloh in 1980 was 17.3% compared to 15.9% for the state of Pahang. The average per capita income per month is M$800.00 (27).

95% of the people in Temerloh enjoy electricity supply provided by the " Tenaga National Berhad " (28).

About 88% of the population in Temerloh received safe water supply from the Public Works Department. Areas which do not receive safe water supply are villages situated along the Pahang River and certain Orang Asli settlements.

5. Transport and communication.

The main means of transportation is by land and river.

Land transportation is by road with 3 main network of roads available. Secondary roads are built by the state to serve most land settlement areas and tertiary roads are available in various villages and estates.

There is also a railway line transversing from Bahau to small towns within the district namely Kemayan, Triang, Mengkarak, Mentakab, Kuala Krau , Jerantut and finally to Kota Bharu.

Small boats are another means of transportation especially to certain traditional villages in Kuala Krau, along the Pahang River.

B. MEDICAL AND HEALTH SERVICES.

There is a 300 bed district hospital in Mentakab which functions as a referal centre for the district of Temerloh, Maran, Jerantut, Bentong, Raub and Lipis which are located on the Western side of Pahang. The hospital has a surgeon, physician, obstetrician, paediatrician and an opthalmologists but no anaesthetist. The hospital is equipped with an operation theatre and blood bank services. Flying squad service is still not available.

The hospital has a maternity wing with 72 beds of which 48 are for the obstetric care and 24 beds for gynaecological problems. The bed occupancy rate is 104.8% and the average hospital stay for both obstetrics and gynaecology cases is 2.8 days. The unit is manned by a consultant obstetrician with the assistance of 4-5 medical officers at any one time. Besides the medical staffs, there is a sister in charge, 12 staff nurses and 21 midwives who provide nursing care to the patients. Most of the complicated cases are reffered to the General Hospital in Kuantan which is about 135km. away.

The district health office is located in Temerloh and is responsible for the planning, organising, administrating, implementing and evaluation of all the health programs of the Ministry Of Health. The health services of the district is delivered through 1 "Sick Bay" , 1 Maternal and Child Health Clinic, 4 Health Centres, 7 Health Sub-centres, 52 Communtiy Clinics, 11 Midwifery Clinics and 7 Temporary Community Clinics.

The various rural health programmes available to the communities to the communities and carried out include maternal and child health, medical care, pharmacy, control of communicable diseases, environmental sanitation, public health nursing, dental health services, health education of public and laboratory.

1. Health Personnels

The district health office is managed by a senior district Health Officer and he is assisted by a junior district health officer. Besides these senior staffs, 12 Medical and Health Officers are directly responsible for the delivery of health care in the district. The nursing personnels consist of 40 staff nurses and public health nurses, 54 assistant nurses, 40 community nurses and 59 midwives form the backbone of the maternal and child health / family palnning services and they are supervised by 3 public health sisters.

Besides the trained nurisng personnels, there are 242 Traditional Birth Attendants (TBA) in the district of whom only 43 are registered with the Ministry of Health. Services by the TBA's are still popular with the people especially in the traditional villages, land settlement schemes and the Orang Asli Settlement.

In addition to the government medical and health facilities, there are 29 private clinics and 1 Maternity Home in the district wher mothers can seek and obtain maternity care.

2. Maternal and Child Health Services

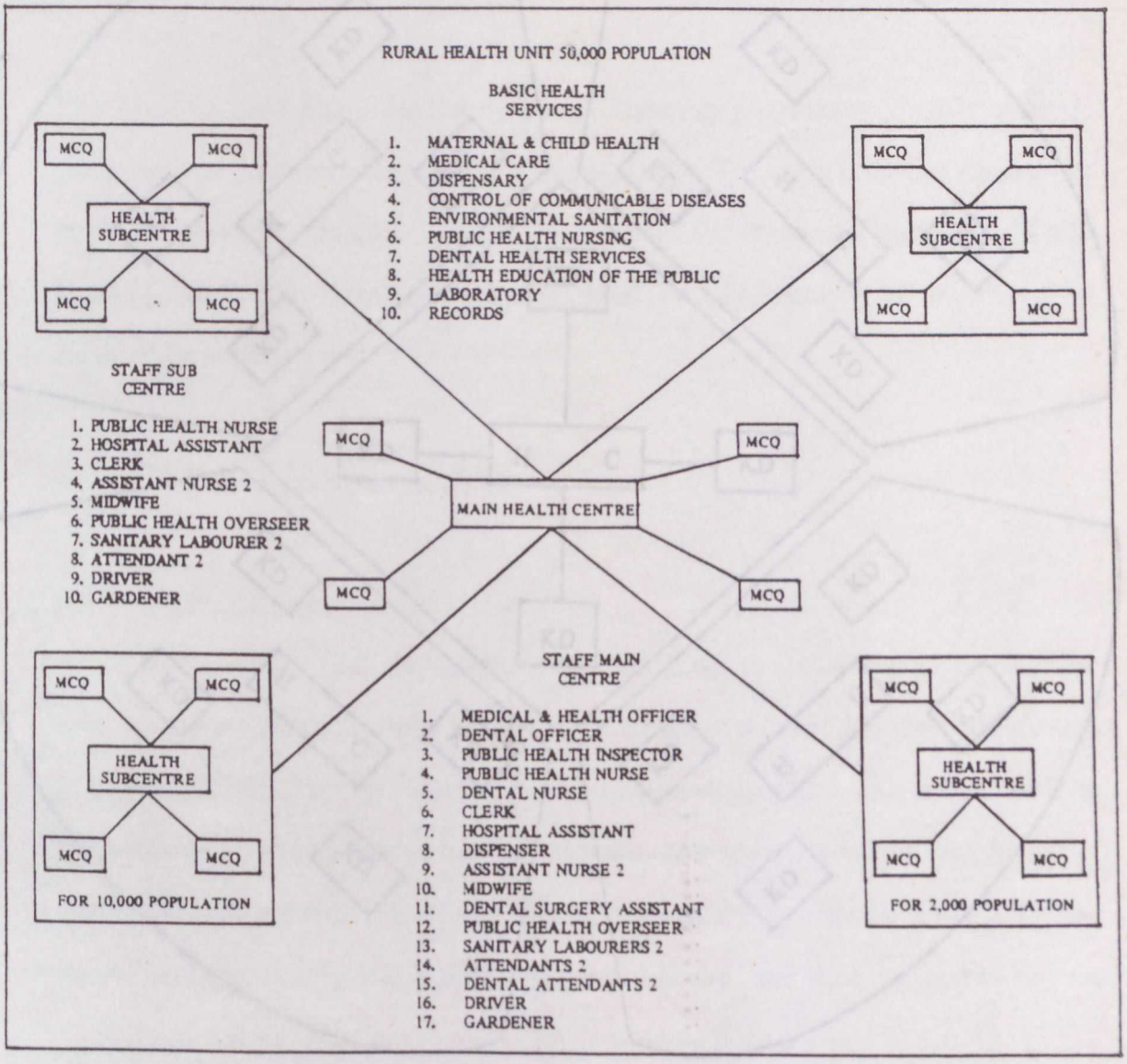
In 1923, legislation for the control in the practice of midwifery in the Straits Settlement and subsequently in other states of the Malay Peninsular was introduced.

Maternal and Child Health Services came in force as an essential component of the National Health Development Programme in 1956 with an extensive development of health infrastructural facilities in the form of Rural Health Units each catering for 50,000 population each, organised on a 3 tier rural health service referal system for Maternal and Child Health Care as shown in Figure 4. Dental care and outpatient care are also offered at Main Health Centres and Health Sub-centres (1 : 10,000 population) as well as domiciliary delivery from midwifery clinics (1:2,000 population). In the fifth Malaysia Plan, the 3-tier rural health service was modified to 2-tier rural health service (see Figure 5) with the Health Centre catering for 15,000 - 20,000 population and Community Clinics serving a 2,000 - 4,000 population.

In 1964, Maternal and Child health Unit was officially established in the Ministry of Health headquarters but was dissolved a year later. It was then reestablished in 1971 and continued to be responsible for the development and expansion of Maternal and Child health Services in the country.

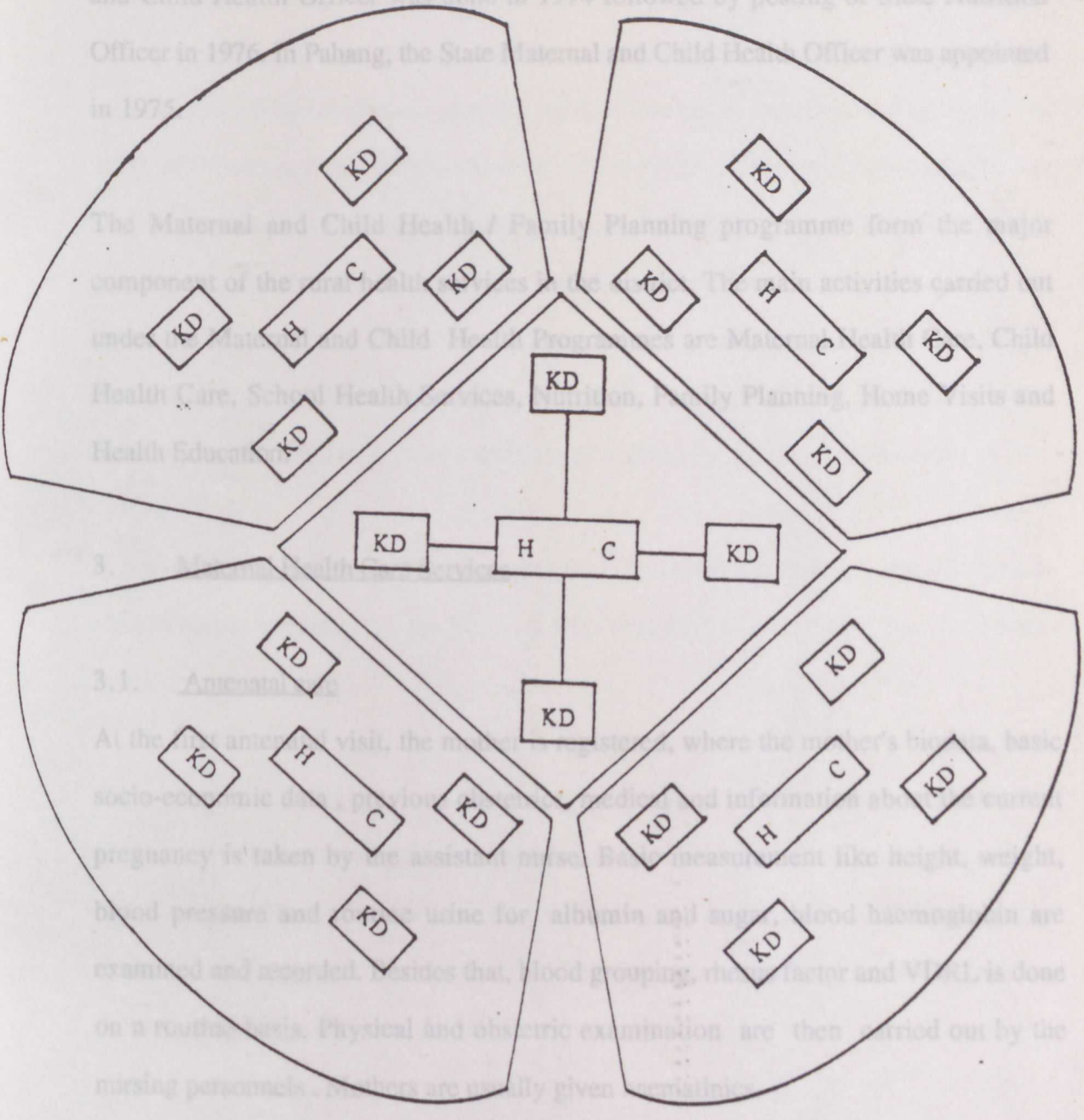
Strengthening of Maternal and Child Health Unit took place between 1973 and 1974 with new strategies and programmes designed to tackle specific

FIGURE 4 : A THREE – TIER RURAL HEALTH SERVICE



MCQ = *MIDEWIFE CLINIC–CUM–QUARTERS*

FIGURE 5 : A TWO – TIER RURAL HEALTH SERVICE



HC. – HEALTH CENTRE
(15,000-20,000 POPULATION)

KD. – RURAL CLINIC
(2,000–4,000 POPULATION)

health problems to fill in the gaps of the exixting services. Posting of State Maternal and Child Health Officer was done in 1974 followed by posting of State Nutrition Officer in 1976. In Pahang, the State Maternal and Child Health Officer was appointed in 1975.

The Maternal and Child Health / Family Planning programme form the major component of the rural health services in the district. The main activities carried out under the Maternal and Child Health Programmes are Maternal Health Care, Child Health Care, School Health Services, Nutrition, Family Planning, Home Visits and Health Education.

3. Maternal Health Care Services

3.1. Antenatal care

At the first antenatal visit, the mother is registered, where the mother's biodata, basic socio-economic data , previous obstetrics, medical and information about the current pregnancy is taken by the assistant nurse. Basic measurement like height, weight, blood pressure and routine urine for albumin and sugar, blood haemoglobin are examined and recorded. Besides that, blood grouping, rhesus factor and VDRL is done on a routine basis. Physical and obstetric examination are then carried out by the nursing personnels . Mothers are usually given haematinics.

Follow up of mothers is done at monthly interval till 28 weeks of gestation after which mothers are then seen every fortnight till 36 weeks

pregnant and then weekly until the date of delivery provided there is no complication detected during this period. In addition, mothers are also examined by the doctor at least once during the pregnancy except for the primigravidas whereby mothers are examined twice by the doctor, once during the first visit to the clinic and again during the third trimester. After the routine check up, mothers are appropriately coded by the health personnels as scheduled by the guideline in management of high risk cases in pregnancies(see Annexe 2). Codings are then reviewed during each consecutive visit. Antenatal check up will not follow the normal schedule if any complication develops, but will be monitored based on the severity of the condition. Health education in form of advice, health talks or demonstration are also given by the health personnels.

However, if the mother cannot be managed at the health centre level, she will then be refered to the specialist at the hospital who will take over the case for for further management and care.

The mothers are also given tetanus toxoid immunisation, two doses for primigravida or mothers who had not been given tetanus immunisation and a booster dose for others. Nutrition supplement such as full cream milk supply are also given to mothers who are found to be anaemic and who come from the lower income group (monthly household income of less than $350.00).

Home visits are done by health personnels to assess mother's home environment and for suitability for home delivery. When mother default

her appoinment home visit is done by the nursing personnel. Home visit is also carried out by the medical and health officer in charge of the operational area when necessary.

3.2. Domicilary delivery

Mother who develop no complications are coded white , and are allowed to deliver at home provided the home conditions permits home delivery. Certain basic amneties must be available such as availability of appropriate space, clean environment, electricity and safe water before the delivery is allowed to be conducted at home.

However, if a mother develops complications during pregnancy, labour or after delivery, then she will be refered to the nearest hospital for further management. At times few mothers utilise the local traditional birth attendants. The birth attendants are trained and registered to ensure practice of cleanliness and hygienic conditions and also advised to seek the help of government midwife' when the mother is in labour.

3.3. Postnatal Care

Post natal care nursing is carried out at home on Day 1, 2, 3, 4, 6, 8, 10 and 20 after delivery. Mother delivered at the hospital are also provided with domiciliary postnatal nursing after she is discharged. Among the services provided during the postnatal nursing are routine examination of the mother

such as recording basic vital signs, recording blood pressure and examination of the lochia. The baby is weighed and monitored for signs any of

complications such as neonatal jaundice, failure to thrive etc. If either mother or baby develops complication, then they will be refered to the hospital. Besides providing postnatal nursing care, health education is also given to the mothers. Topics given during the health education sessions include taking care of the breast, care of the newborn, diet, family planning etc.

Six weeks after delivery, mothers are given an appointment for a postnatal check up at the nearest health centre. Here, a thorough physical and obstetric examination (including vaginal examination is carried out). Mothers are then encouraged to space their next pregnancy by adopting an effective method of family planning.

Since the inception of Maternal and Child health services, the Ministry of health had introduced several strategies to upgrade the health status of the mothers. Between 1976-1978, integration of special programmes into MCH services were carried out namely the Family Planning Programme and the Applied Food and Nutrition Programme. Between 1978 - 1980, the Ministry of Health identified and developed community resources like traditional birth attendants and teachers who were trained in basic public health care. One of the recent intervention was the " High Risk " approach which was adopted by Malaysia in 1981 and by 1984 this strategy was implemented through out Peninsular Malaysia. The aim was to use it as a managerial tool to provide antenatal care for all but with specific attention for those who need them most.

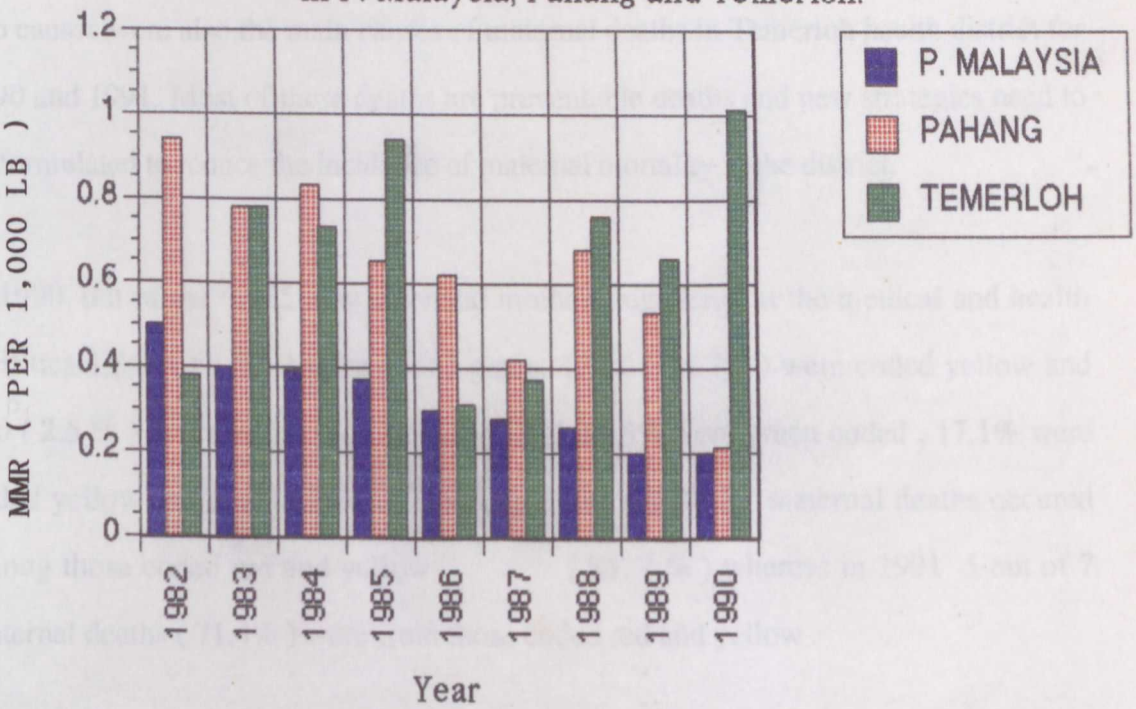
Under this strategy, all high risk pregnant mothers were tagged red based on the criteria developed by the MCH Unit of the Ministry of health. The identified group were then given special attention so as to ensure a safe delivery. In 1989, a coding system was introduced whereby mothers were given 4 different types of codes depending on the level of risk. The 4 codes were :-

- White code : No risk
- Green code : Must at least be seen by staff nurse
- Yellow code : Must at least be seen by doctor at the health centre or hospital
- Red code : Require immediate hospital admisssion

In 1991 the guideline for this coding was revised (Annexe 2).

Another programme concerned in the reduction of maternal mortality was the " Safe Motherhood Initiative " which was first launched in Nairobi in 1987. This strategy was introduced in Malaysia in February 1990 with the objective of identifying factors contributing to maternal deaths and developing a plan of action based on local needs and availability of resources. Temerloh was choosen as one of the 4 health districts in Malaysia for this programme because it had one of the highest maternal mortality rate of1.02 per 1000 livebirths compared to 0.53 per 1000 livebirths for Pahang and 0.20 per 1000 livebirths for Malaysia respectively in 1989 (Figure 6). With the introduction of this program, an active plan of action was formulated based on the existing coding system and with special attention for the red and yellow coded cases.

Figure 6 : Maternal Mortality Rate (per 1,000 livebirth) in P. Malaysia, Pahang and Temerloh.



Source : Information and Documentation System Unit, Ministry of Health Malaysia (for Peninsular Malaysia and Pahang)

Annual Reports, Maternal and Child Health Unit, Department of Medical and Health Services , Pahang (Temerloh).

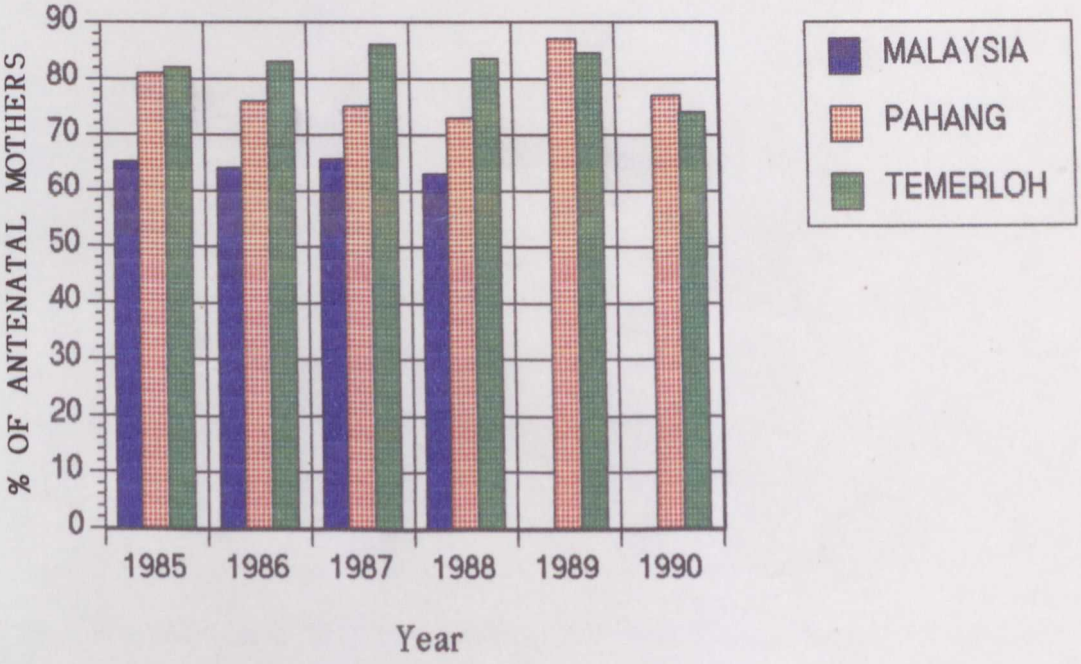
4. Maternal Morbidity Pattern.

Pregnancy and its sequelae is said to be among the five leading causes of death for women aged 15 to 44 years. WHO also estimated that of the 500,000 women dying each year from causes related to pregnancy, 75% are due to preventable causes such as haemorrhage, severe anaemia, sepsis, obstructed labour and toxaemia (6). In Malaysia the leading cause of death in 1989 was due to medical conditions. However, the major cause of maternal deaths for Pahang in 1990 was haemorrhage and toxaemia and these two causes were also the main causes of maternal deaths in Temerloh health district for 1990 and 1991. Most of these deaths are preventable deaths and new strategies need to be formulated to reduce the incidence of maternal mortality in the district.

In 1990, out of the 6,955 new antenatal mothers registered at the medical and health facilities 4,854 (67.8%) were coded green, 1,718 (24.7%) were coded yellow and 176 (2.5 %) were coded red , while in 1991 64.3% were green coded , 17.1% were coded yellow and 1.4% werecoded red. In 1990, 6 out of 7 maternal deaths occured among those coded red and yellow (85. 7 %) whereas in 1991 5 out of 7 maternal deaths (71.4%) were from those coded red and yellow .

The coverage of antenatal mother (first visit) by public health facilities was 73.9% for Temerloh District in 1990 compared to 76.6% for Pahang for the same year (Figure 7).

Figure 7 : Coverage of Antenatal Mothers (first visit) by Public Health Facilities.

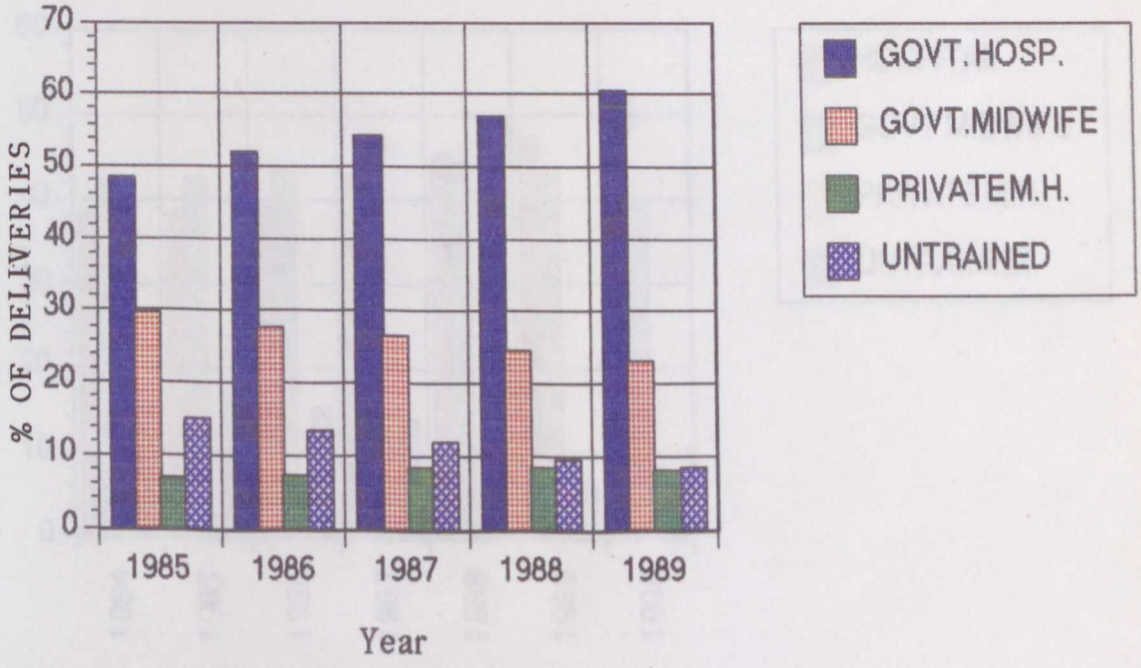


Source : Information and Documentation System Unit, Ministry of Health, Malaysia.

Annual Reports, Maternal and Child Health Unit, Department od Medical and Health Services , Pahang.

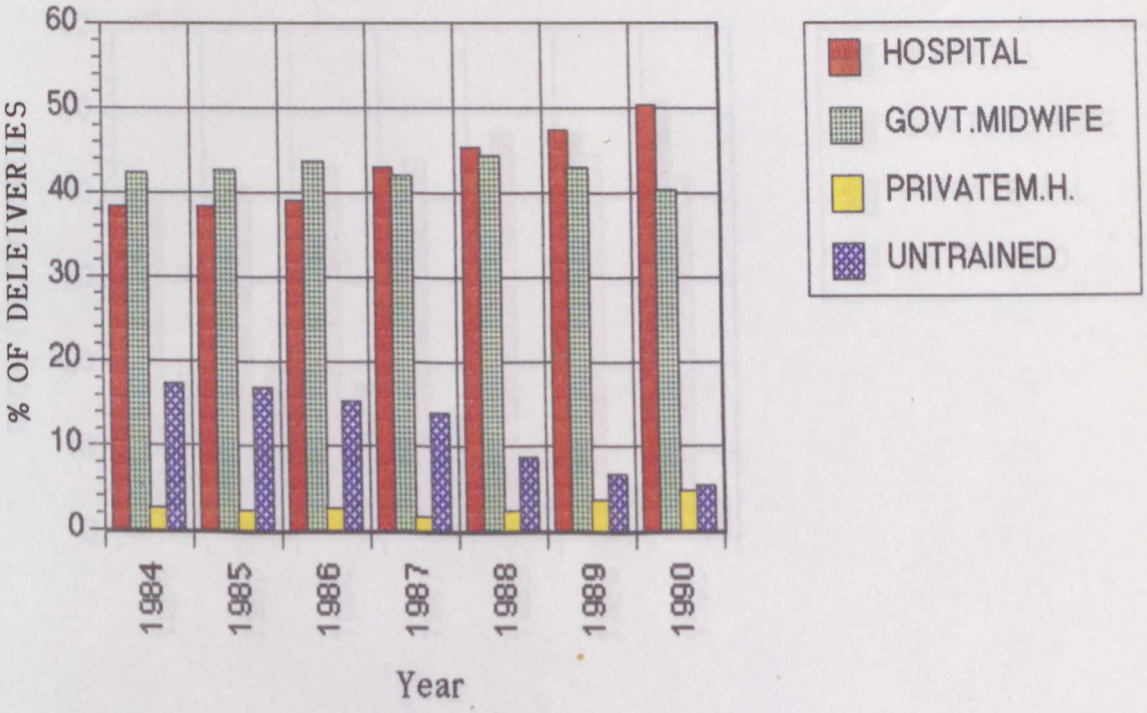
51.3% of the deliveries in 1990 in Temerloh district were delivered in the hospital, 42.20% were home deliveries conducted by government midwives and 4.7% of the deliveries were unsafe deliveries. This was lower compared to the national figure of unsafe deliveries although hospital deliveries for Malaysia was higher than Pahang and Temerloh district respectively (Figure 8, 9 and 10).

Figure 8 : Deliveries Attended By Trained and Untrained Personnel in Malaysia



Source : Information and Documentation System Unit, Ministry of Health, Malaysia.

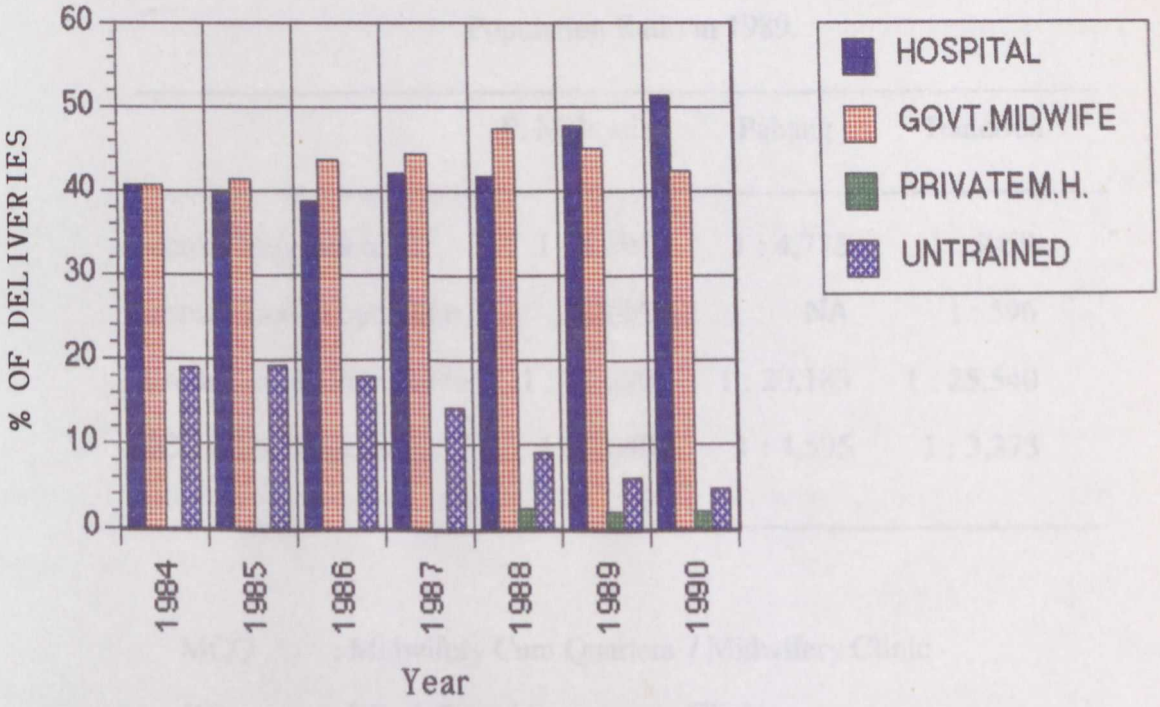
Figure 9 : Deliveries Attended by Trained and Untrained Personnel in Pahang



Source : Information and Documentation System Unit, Ministry of Health, Malaysia.

Annual Reports : Maternal and Child Health Unit, Department of Medical and Health Services , Pahang.

Figure 10 : Deliveries Attended By Trained and Untrained Personnel in Temerloh District



Source : Annual Reports , Maternal and Child Health Unit, Department of Medical and Health Services, Pahang.

Table 6 : Doctor Population ratio and Health Infrastructure Population Ratio in 1989.

	P. Malaysia	Pahang	Temerloh
Doctor : Population	1 : 2,391	1 : 4,775	1 : 5959
Hospital Bed : Population	NA	NA	1 : 596
Health Centre : Population	1 : 35,220	1 : 20,183	1 : 25,540
MCQ / KD : Population	1 : 8,640	1 : 4,595	1 : 3,373

MCQ : Midwifery Cum Quarters / Midwifery Clinic

KD : Klinik Desa / Community Clinic

METHODOLOGY.

1. RATIONALE FOR CHOOSING THE STUDY AREA.

Prior to joining the MPH course, the author held the post of the State Maternal and Child Health Officer for more than 2 years. As the State Maternal and Child Health Officer, the author was involved in planning, implementation, coordination and evaluation of the Maternal and Child Health programmes in the state of Pahang.

Over the years, there has been an increase in both health infrastructure and health personnels in Pahang State and Temerloh District (Table 7). During the course of her work, the author noticed that inspite of the socio-economic development in the state and various strategies adopted by the MInistry of Health for the prevention of maternal mortality, Temerloh District recorded one of the highest maternal mortality in the country for 1990 and 1991.

By undertaking this study, the author will be able to identify factors contributing to high maternal mortality in Temerloh District. To identify the factors contributing to maternal mortality, the author decided to study the health care of the high risk pregnant mothers in Temerloh District. It is hoped that through this study, the level of care provided to the high risk pregnant mothers will be evaluated and recommendations to further improve and strengthen the maternal care services can be planned. It is also hoped that the findings of this study can be applied to other districts in the state or other areas in the country facing similar problems.

Table 7 : Health Infrastructure and health personnels in Pahang State and Temerloh District.

Infrastruture / Personnels	Pahang			Temerloh		
	Year					
	1975	1980	1990	1975	1980	1990
Hospital Desa / Sick Bay	-		3	-	-	1
MCH Clinic	2	5	5	1	1	1
Main Health Centre (MHC)	7	7	18	1	2	4
Health Sub- Centre (HSC)	23	26	26	6	7	7
MCQ	155	100	60	41	24	11
Klinik Desa (KD)	5	70	138	4	29	52
Temporary MCQ/KD	1	20	36	1	6	7
District Health Officer	10	10	10	2	2	2
Med. & Health Officer	10	32	36	N.A.	N.A.	12
Health Matron	1	2	3	0	0	0
Health Sister	9	12	14	1	2	3
Staff Nurse	73	113	156	N.A.	N.A.	40
Assistant Nurse	105	147	211	N.A.	N.A.	54
Midwife	216	253	249	N.A.	N.A.	59
Community Nurse	42	74	106	N.A.	N.A.	40

The other reason for selecting this study was that having worked as the State MCH Officer, the author was very familiar with the MCH personnels in the state and she will be able to get the cooperation and assistance of the local health staff in the collection of data for her study.

2. COLLECTION OF BACKGROUND DATA.

Demographic, socio-economic information and vital statistics for the study area were obtained from the Medical and Health Services Department, Pahang; Economic Planning Unit, Pahang; Temerloh Health Office; District land office and the Statistics Department.

3. SELECTION OF STUDY POPULATION

The study population were high risk mothers who had been coded red and yellow during the current pregnancy, and had delivered in the month of January and February 1992, irrespective of their delivery outcome.

These mothers had their antenatal check up at the government health centres in Temerloh district. During the 2 months period, there were 964 deliveries in the district, of which 166 cases were coded red and yellow (127 cases or 13.2% were coded yellow and 39 or 4.1% were coded red). One of the red coded case resulted in maternal death due to Preeclampsia and heart failure.

4. ORGANISATION OF SURVEY.

4.1.. Preparation of questionaire.

The study was carried out with the aid of questionaire covering the socio-economic and health care of mothers. The question was prepared by the author after reviewing relevant literatures. Pre-testing of questionaire was carried out by interviewing all yellow and red coded postnatal mothers who attended post- natal clinic in one of the health centres in the state of Selangor. Several women were interviewed. These mothers had characteristics comparable to the study population but were not included in the study. The questionaire was then corrected where necessary before it was reproduced. Any ambiguity was eliminated from the questionaire and culturally objectionable or easily misunderstood wording was altered.

4.2. Preparation for the survey.

Prior to the actual survey , a meeting with the Medical Officer of Health and Public Health Sisters of Temerloh Health District was held. Severals aspects of the survey such as time, study population and health personnels to be involved were discussed and finalised. Following this, 18 staff nurses were identified and a short training by the author was organised to familiarise the staff with the questionaire before the interview was carried out. Any doubts regarding the questionaire was clarified during this session and a time schedule for carrying out the survey at the respective health centre was given to the staff nurses.

All the antenatal cards were rechecked to ensure criterias for yellow and red coding were met before the cards were separated from the rest by the author and the staff nurses in charge of the respective health centre.

4.3. The interview and data collection.

Based on the work schedule, the author visited the respective health centre on the dates given on the schedule. At each health centre, the author was assisted by two staff nurses who had informed the mothers to come for the interview. Each mother was interviewed with the help of the questionaire by the author or the staff nurses and the interview took 20 - 30 minutes to administer.

For mothers who failed to attend the clinic on the appointed date, home visits were made by the author and staff nurse and the interview was carried out in their home. During the home visit, if the mother was not at home, then enquiries were made either from the neighbours or relatives and a new appoinment date was given. If mother failed to turn up at the health centre, then she would be dropped from the study.

The questionaire was in Bahasa Malaysia (National Language) and for respondents not conversant in the National language, interpreters were utilised when necessary. If mother had difficulty in providing details regarding her antenatal history, antenatal cards were utilised to counter check the information given by the mothers. The duration of the data collection was from 30 March 1992 to 18 April 1992.

5. DATA PROCESSING

Data collected were checked every night for completeness, accuracy before entering the data for analysis. If there was any doubt, a second appointment was then made with the mother concerned and clarification was done by the author. To counter check the consistency of the data collected by the staff nurse, the author randomly rechecked the information. Data processing was done manually and then computerised with the aid of several ' Apple Macintosh ' programmes such as word proccessor (word 4.0), microsoft excell 3.0 and delta graphic for further analysis of results and report writing.

LIMITATION and ERRORS

1. LIMITATION

In the month of January and February 1992, a total of 166 yellow and red coded high risk pregnant mothers delivered in the district of Temerloh. Out of this only 148 (89.2 %) respondents were interviewed. 7 (4.2 %) caseswho were coded red and yellow were from outside the district of Temerloh who came back for delivery and returned to their place of work soon after the delivery and were not available for the interview. 6 (3.6 %) left thedistrict / state befor delivery, 4 (2.4 %) mothers went back to their mother's place for confinement in another district and did not return and one (0.6 %) ended as maternal death due to preeclampsia and heart failure on the the sixth day after delivery.

Mothers responded to the questionaire quite easily, except for few mothers who had problems in remembering the actual date of birth of their previous deliveries. Birth certificates were used to verify this. Questions regarding mothers knowledge on high risk was forwarded in manner that the given column was given a 'tick' if the risk was named by the mother and not as a leading question. There are some Indian and Chinese mothers who did not understand the National or English language so the help of Indian and Chinese nurses were used in this case.

Due to time limitation, only Temerloh district was utilised for this purpose of this study and only red and yellow coded mothers were interviewed. The

population involved were only those who came to the health facilities for her antenatal check up. Antenatal mothers seen at the private clinics were not included.

2. ERRORS

In the collection of the data, the ability of respondents to give accurate information need to be considered. There could be misunderstanding and misinterpretation of the questions .

Since the study was conducted in Bahasa Malaysia, for the non speaking Indian and Chinese mothers, the author had to utilise staffs who were conversant in both languages. This might result in biasness as the nurse could had given a leading answer while explaining the questions.

The author utilised assistance from different staff nurses in each health centre in order to collect the information from the mothers. This could result in biasness and may affect the accuracy and consistency of the data collected inspite of the supervision carried out by the author. Further more, the author was using the staff nurse in their own operational area, so the staff themselves might have verified or helped the mothers with the answer to indicate their efficiency. Answers given by the mothers also might not be true as they might had tried to please the staff concerned. Both situations could thus resulted in biasness and inaccuracy of the results obtained during the study survey.

The period when the study was carried out was during the last week of fasting month and the " Hari Raya " week, and this could have affected the sample size as some mothers had gone back to their parents place to celebrate the event.

Information regarding household income were sometimes difficult to obtain. Some mothers did not know or bother to find out their husband's income and some were quite reluctant to answer the question.

Errors might occur during the manual sorting or during transfer of the raw data into the computer and this again could affect the findings of the study.

RESULTS

1. Demographic profile and Socio-economic data.

1.1. Ethnic group

A total of 148 high risk pregnant mothers were interviewed for the purpose of this study. The study population consisted of107 (72.3%) Malays, 19 (12.83%) Chinese, 14 (9.4%) Indians and 8 (5.41%) others.

1.2. Age

The mean age of the mothers studied was 30.7 years. The Mean age for Malay mothers was 31.4 years, the Chinese mothers 30.1 years, Indian mothers 27.7 years and other ethnic groups 28.9 years respectively.

Most mothers (53.4%) were in the of 25-34 years age group. 27.7% of the mothers were in the 25-29 years age group, 25.7% in the 30-34 years age group, 23.0% in the 35-39 years age group followed by 12.2% between 20-24 years, 8.1% in the 40-44 years age group, 2.7% were in the 19 years and below while 0.7% were in the 45 years and above age group as shown in Table 8 .

Table 8 : Distribution of high risk mothers by age and ethnic group.

Age Group (years)	Ethnic group of mother				
	Malay	Chinese	Indian	Others	Total
⩽ 19	2	0	1	1	4
	(1.9%)	(0 %)	(7.1%)	(12.5%)	(2.7%)
20-24	12	2	2	2	18
	(11.2%)	(10.5%)	(14.3%)	(25.0%)	(12.2%)
25-29	27	6	6	2	41
	(25.2%)	(31.6%)	(42.9%)	(25.0%)	(27.7%)
30-34	25	8	4	1	38
	(23.4%)	(42.1%)	(28.6%)	(12.5%)	(25.7%)
35-39	29	3	1	1	34
	(27.1%)	(15.8%)	(7.1%)	(12.5%)	(23.0%)
40-44	11	0	0	1	12
	(10.3%)	(0 %)	(0 %)	(12.5%)	(8.1%)
⩾ 45	1	0	0	0	1
	(0.9%)	(0 %)	(0 %)	(0 %)	(0.7%)
Total	107	19	14	8	148
	(72.3%)	(12.8%)	(9.5%)	(5.4%)	(100%)

1.3. Education level.

As for the mothers, 39.2% had primary education, 25.7% had lower and upper secondary education respectively. The remaining 9.4% had no education. Most of the Malay mothers (40.2%) had primary education, while 52.6% of Chinese mothers had lower secondary education and 28.6% of the Indian mothers had no education, 50.0% had primary education and 21.4% had lower secondary education. None of the Indian mothers had upper secondary or tertiary education as shown in Figure 11.

1.4. Occupation

77.7% of the mothers were housewives and only 33 (22.3%) were working mothers. Of the working mothers, 24.2% were rubber tappers, 18.2% were clerks and 12.1% were labourers and teachers respectively. Table 9 showsthat there is a significant difference between working status of mothers and ethnic group.

15.0% of the Malay mothers mainly worked as teachers and clerks. 36.8% of the Chinese mothers were working, of which 42.9% were tailors and 28.6% were clerks. As for the Indian mothers, 64.3% of the mothers were working and majority of them are rubber tappers (55.6%) and labourers (33.3%) as shown in Table 10 .

Figure 11 : Educational level of mothers according to ethnic groups.

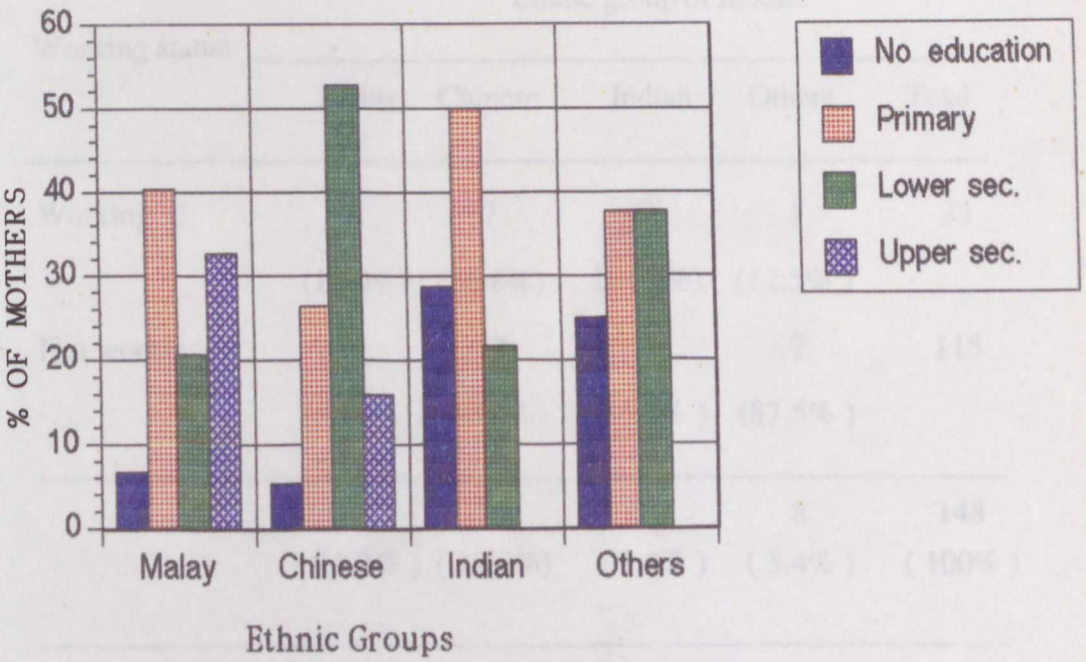


Table 9 : Working status of mothers according to ethnic group.

Working status	Ethnic group of mother				
	Malay	Chinese	Indian	Others	Total
Working	6 (15.0%)	7 (36.8%)	9 (64.3%)	1 (12.5%)	33
Not working	91 (85.0%)	12 (63.2%)	5 (35.7%)	7 (87.5%)	115
	107 (72.3%)	19 (12.8%)	14 (9.5%)	8 (5.4%)	148 (100%)

Chi Square Test = 20.344 df = 3 a = 0.05 $p < 0.01$

Table 10 : Occupation of mothers according to ethnic groups.

Occupation	Ethnic groups of mother				
	Malay	Chinese	Indian	Others	Total
Rubber tapper	2	1	5	0	8
	(12.5%)	(14.3%)	(55.6%)	(0 %)	(24.2%)
Clerk	4	2	0	0	6
	(25.0%)	(28.6%)	(0 %)	(0 %)	(18.2%)
Labourer	1	0	3	0	4
	(6.2%)	(0 %)	(33.3%)	(0 %)	(12.1%)
Teacher	4	0	0	0	4
	(25.0%)	(0 %)	(0 %)	(0 %)	(12.1%)
Tailor	0	3	0	0	3
	(0 %)	(42.8%)	(0 %)	(0 %)	(9.1%)
Typist	2	0	0	0	2
	(12.5%)	(0 %)	(0 %)	(0 %)	(6.1%)
Child care	0	0	1	1	2
	(0 %)	(0 %)	(11.1%)	(100%)	(6.1%)
Others	3	1	0	0	4
	(18.8%)	(14.3%)	(0 %)	(0 %)	(12.1%)
Total	16	7	9	1	33
	(48.5%)	(21.2%)	(27.3%)	(3.0%)	(100%)

22.3% of the husbands are land settlers participating in agricultural activities, followed by 14.86% labourers, 10.81% traders, 10.81 % rubber tappers and 8.78% drivers.

1.5. Household income.

38.5% of the population under study had a monthly income of $ 350.00 and below, 19.6% earned between $ 350.00 to $ 500.00, 13.5% earned between $ 501.00 to $ 650.00, 7.4% earned between $651.00 to $ 800.00 and 20.95% had a monthly income of above $ 800.00.

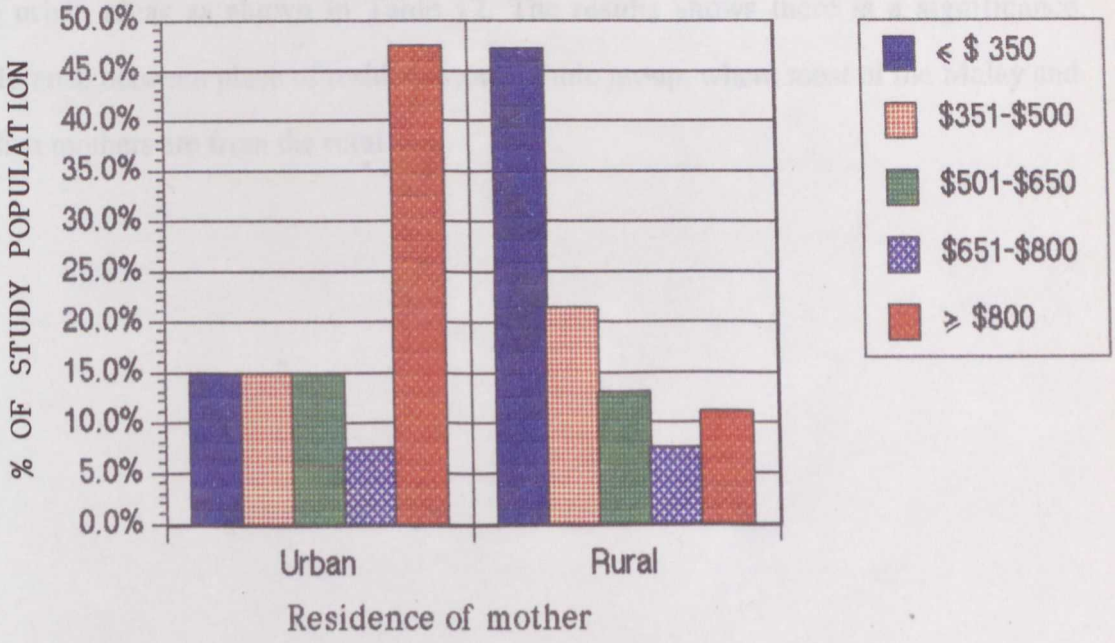
42.1% of the Malays, 57.1% of Indians and 50% of other ethnic groups had a monthly income of $350.00 and below. 42.1% of the Chinese had a monthly income of $800.00 and above. None of the Chinese mothers belonged to the poverty group (income of $ 350.00 and below).

47.2% of those living in the rural areas had a monthly household income of $350.00 or less, whereas 47.5% of those living in the urban areas had a monthly income of ≥ $801.00 monthly as shown in Table 11 and Figure 12.

Table 11 : Household income according to ethnic groups.

Income	Ethnic groups of mother				
	Malay	Chinese	Indian	Others	Total
⩽ $350.00	45	0	8	4	57
	(42.1%)	(0 %)	(57.2%)	(50.0%)	(38.5%)
$ 351 - $500	23	1	3	2	29
	(21.5%)	(5.3%)	(21.4%)	(25.0%)	(19.6%)
$ 501 - $650	12	5	2	1	20
	(11.2%)	(26.3%)	(14.3%)	(12.5%)	(13.5%)
$ 651 - $800	5	5	0	1	11
	(4.8%)	(26.3%)	(0 %)	(12.5%)	(7.4%)
⩾ $ 800.00	22	8	1	0	31
	(20.6%)	(42.1%)	(7.1%)	(0 %)	(20.9%)
Total	107	19	14	8	148
	(72.3%)	(12.8%)	(9.5%)	(5.4%)	(100%)

Figure 12: Monthly household income according to residence of mother.



1.6. Residence of mother.

73% of the population under study were from the rural areas whereas 27% from the urban areas.

82.2% of the Malays and 85.7% of the Indians were from the rural areas. Most of the Chinese (73.7%) are from the urban areas and 62.5% of other ethnic groups live in the urban areas as shown in Table 12. The results shows there is a significance difference between place of residence and ethnic group, where most of the Malay and Indian mothers are from the rural area.

Table 12 : Residence of mother according to ethnic groups.

Residence	Ethnic groups of mother				
	Malay	Chinese	Indians	Others	Total
Rural	88	5	12	3	108
	(82.2%)	(26.3%)	(85.7%)	(37.5%)	(73.0%)
Urban	19	14	2	5	40
	(17.8%)	(73.7%)	(14.3%)	(62.5%)	(27.0%)
Total	107	19	14	8	148
	(72.3%)	(12.8%)	(9.5%)	(5.4%)	(100%)

Chi Square Test = 31.8625 df = 3 a = 0.05 $p < 0.01$

1.7. Age at first marriage.

The mean age at first marriage for the population studied was 20.6 years. For the Malay mothers, the mean age at first marriage was 20.2 years, for the Chinese mothers, it was 24.4 years, the Indians 20.4 years and for the other ethnic groups, it was 17.6 years .

Majority of the mothers (44.6%) were first married at the age of 19 years or less, while 35.1% were married at the age of 20 - 24 years, 14.9% were married at the age of 25 - 29 years and the other 5.4% were married at the age of 30 - 34 years as seen in Table 13.

71.4% of mothers with no education were married at the age of 19 years or less, while 55.1% of mothers who had primary education and 52.6% of the mothers with lower secondary education were first married at the age19 years or less. However, among mothers with upper secondary education, 55.3% were married at the age of 20 - 24 years as shown in Table 14. The results shows that there is a significant difference between the level of education and age at first marriage where mothers with minimal education married much early.

52.8% of the mothers living in the rural area got married at the age of19 years and below, with another 31.48% married for the first time at the age of 20 -24 years. As for the urban mothers, 45% were first married at the age of 20 - 24 years, 27.5% married at age of 19 years or less as seen in Figure 13.

Table 13 : Age at first marriage according to ethnic groups.

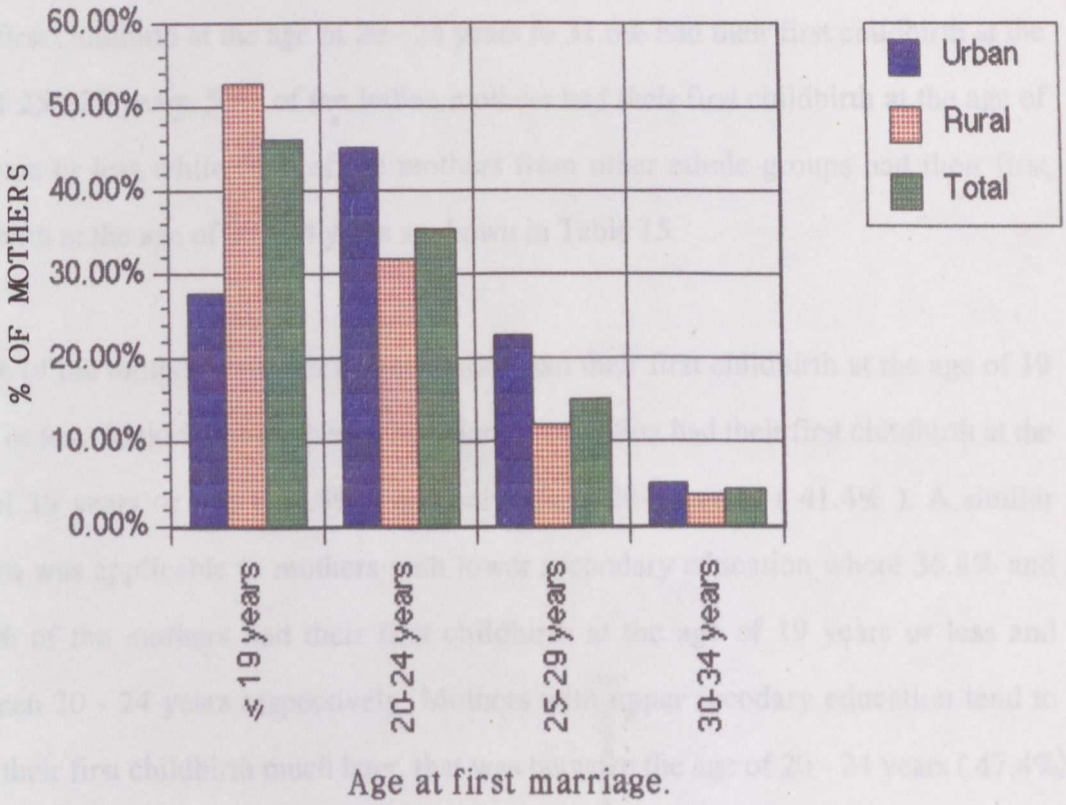
Age at first marriage	Ethnic group of mother				
	Malay	Chinese	Indians	Others	Total
≤ 19 years	50	1	8	7	66
	(46.7%)	(5.3%)	(57.2%)	(87.5%)	(44.6%)
20 - 24 years	39	9	3	1	52
	(36.5%)	(47.4%)	(21.4%)	(12.5%)	(35.1%)
25 - 29 years	13	7	2	0	22
	(12.1%)	(36.8%)	(14.3%)	(0%)	(14.9%)
30 - 34 years	5	2	1	0	8
	(4.7%)	(10.5%)	(7.1%)	(0%)	(5.4%)
Total	107	19	14	8	148
	(72.3%)	(12.8%)	(9.5%)	(5.4%)	(100%)

Table 14 : Age at first marriage according to educational level.

Age at first marriage	Education level of mother				
	No schooling	Prim.	LS	US	Total
⩽ 19 years	10	32	20	6	68
	(71.4%)	(55.3%)	(52.6%)	(15.8%)	(45.9%)
20 - 24 years	3	7	11	21	52
	(21.4%)	(12.1%)	(29.0%)	(55.3%)	(35.1%)
25 - 29 years	1	6	6	9	22
	(7.2%)	(10.4%)	(15.8%)	(23.7%)	(14.9%)
30 - 34 years	0	3	1	2	6
	(0 %)	(5.2%)	(2.6%)	(5.3%)	(4.1%)
Total	14	58	38	38	148
	(9.4%)	(39.2%)	(25.7%)	(25.7%)	(100%)

Chi square Test = 34.4393 df = 6 a = 0.05 $p < 0.01$

Figure 13 : Age at first marriage according to residence of mother.



1.8. Age at first childbirth.

For the population under study, the mean age at first childbirth was 21.9 years. Mean age at first childbirth recorded were 21.9 years, 25.2 years, 19.4 years respectively for the Malays, Chinese and Indian mothers.

32.1% of Malay mothers aged of 19 years or less and 44.0% of the Malay mothers had their first childbirth at the age of 20 -24 years. As for the Chinese mothers 47.3% had their first childbirth at the age of 20 - 24 years fo 31.6% had their first childbirth at the age of 25 - 29 years. 50% of the Indian mothers had their first childbirth at the age of 19 years or less while 75% of the mothers from other ethnic groups had their first childbirth at the age of 20 - 24 years as shown in Table 15.

57.1% of the mother's without any education had their first childbirth at the age of 19 years or less. Majority of mothers with primary education had their first childbirth at the age of 19 years or less (34.5%) and between 20-24 years (41.4%). A similar pattern was applicable to mothers with lower secondary education where 36.8% and 50.0% of the mothers had their first childbirth at the age of 19 years or less and between 20 - 24 years respectively. Mothers with upper secodary education tend to have their first childbirth much later, that was between the age of 20 - 24 years (47.4%) and 25 - 29 years (34.2%) as shown in Table 16. The results also show that there is a significant difference between the educational level of mothers and age of mother at the first childbirth.

Table 15 : Age at first childbirth according to ethnic groups.

Age at first childbirth	Ethnic group of mother				
	Malay	Chinese	Indian	Others	Total
≤ 19 years	35	1	7	2	45
	(32.7%)	(5.3%)	(50.0%)	(25.0%)	(30.4%)
20 - 24 years	47	9	3	6	65
	(44.0%)	(47.3%)	(21.4%)	(75.0%)	(43.9%)
25 - 29 years	18	6	3	0	27
	(16.8%)	(31.6%)	(21.4%)	(0 %)	(18.3%)
30 - 34 years	6	2	1	0	9
	(5.6%)	(10.5%)	(7.2%)	(0 %)	(6.1%)
35 - 39 years	1	1	0	0	2
	(0.9%)	(5.3%)	(0 %)	(0 %)	(1.3%)
Total	107	19	14	8	148
	(72.3%)	(12.8%)	(9.5%)	(5.4%)	(100%)

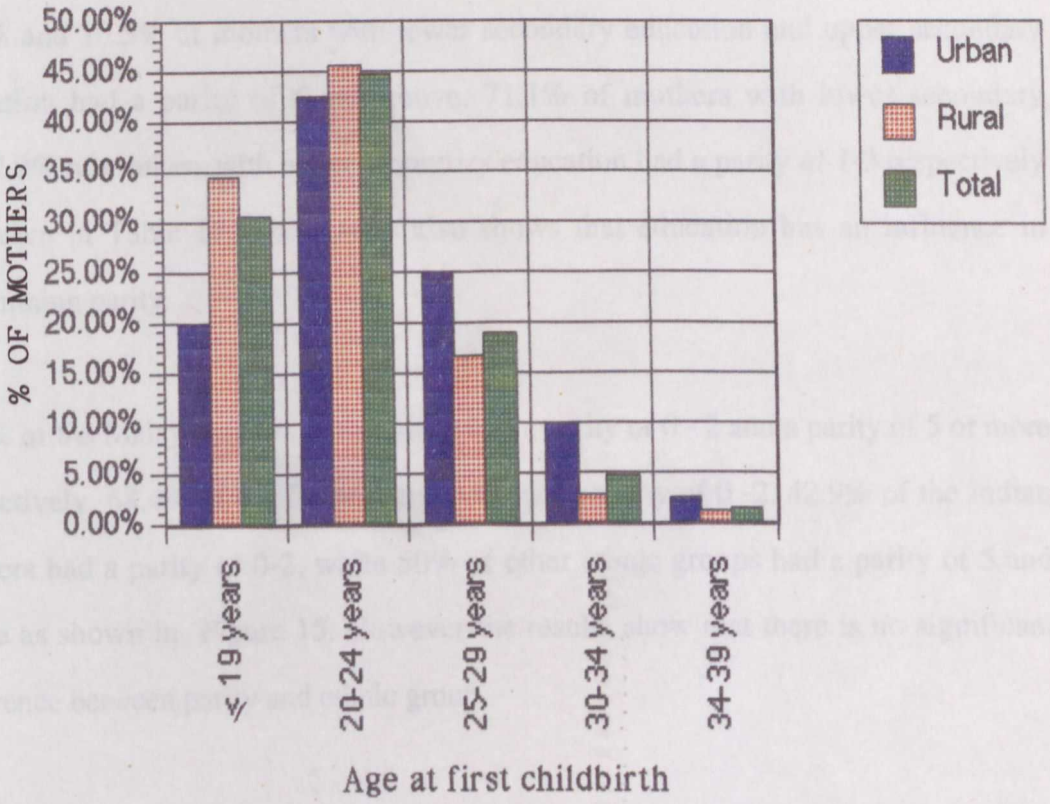
Table 16 : Age at first childbirth according to educational level.

Age group at first childbirth	Education level of mother				
	No Educ	Primary Sec.	Lower Sec.	Upper Sec	Total
⩽19 years	8	20	14	3	45
	(57.1%)	(34.5%)	(36.8%)	(7.9%)	(30.4%)
20-24 years	4	24	19	18	65
	(28.6%)	(41.4%)	(50.0%)	(47.4%)	(43.9%)
25-29 years	2	9	3	13	27
	(14.3%)	(15.5%)	(7.9%)	(34.2%)	(18.3%)
30-34 years	0	3	2	4	9
	(0 %)	(5.2%)	(5.3%)	(10.5%)	(6.1%)
35-39 years	0	2	0	0	2
	(0 %)	(3.4%)	(0 %)	(0 %)	(1.3%)
Total	14	58	38	38	148
	(9.4%)	(39.2%)	(25.7%)	(25.7%)	(100%)

Chi Square Test = 21.6824 df = 6 a = 0.05 $p < 0.01$

45.4% and 34.3% of the rural mothers had their first childbirth at the age of 20-24 and19 years or less respectively whereas 42.5% of the urban mothers had their first childbirth at the age of 20-24 years, 25.0% at the age of 25-29 years and 20.0% had their first childbirth at the age of19 years or less as shown in Figure 14.

Figure 14 : Age at first childbirth according to residence of mother.



1.9. Parity

In this study, there was14 (9.5%) primiparas of which 4 (28.6%) belonged to the19 years or less age group, 3 (21.4%) were in the 20-24 years age group, 6 (42.8 %) aged 25-29 years and 1 (7.1%) aged 35-39 years. 15.5%, 16.2%, 14.9%, 11.5% and 7.4% had a parity of 1, 2, 3, 4 and 5 respectively. The other 25% had a parity of 6 and above.

41.4% of mothers with primary education had a parity of 6 and above, while only 13.1% and 10.5% of mothers with lower secondary education and upper secondary education had a parity of 6 and above. 71.1% of mothers with lower secondary and57.9% of mothers with upper secondary education had a parity of 1-3 respectively as shown in Table 17. The results also shows that education has an influence in determining parity.

36.5% of the Malay mothers in this study had a parity of 0 - 2 and a parity of 5 or more respectively. 68.4% of the Chinese mothers had a parity of 0 -2, 42.9% of the Indian mothers had a parity of 0-2, while 50% of other ethnic groups had a parity of 5 and above as shown in Figure 15. However the results show that there is no significant difference between parity and ethnic group.

55.0% of mothers staying in the urban area had a parity of 0 - 2. As for the the rural mothers 36.1% of the rural mothers had a parity of 0 - 2 and 37.0% had a parity of 5 or more as shown in Table 18. The results show that there is a significant difference between parity and residence of mother.

Table 17 : Parity according to educational level.

Parity	Education level of mother				
	No Education	Primary	Lower Sec.	Upper Sec.	Total
0	2	3	3	6	14
	(14.3%)	(5.1%)	(7.9%)	(15.8%)	(9.5%)
1	1	4	9	9	23
	(7.1%)	(6.9%)	(23.7%)	(23.7%)	(15.5%)
2	3	4	9	8	24
	(21.5%)	(6.9%)	(23.7%)	(21.1%)	(16.2%)
3	1	7	9	5	22
	(7.1%)	(12.1%)	(23.7%)	(13.1%)	(14.9%)
4	2	7	2	6	17
	(14.3%)	(12.1%)	(5.3%)	(15.8%)	(11.5%)
5	1	9	1	0	11
	(7.1%)	(15.5%)	(2.6%)	(0 %)	(7.4%)
⩾6	4	24	5	4	37
	(28.6%)	(41.4%)	(13.1%)	(10.5%)	(25.0%)
Total	14	58	38	38	148
	(9.4%)	(39.2%)	(25.7%)	(25.7%)	(100%)

Chi Square Test = 36.7113 df = 15 a = 0.05 $p < 0.01$

Figure 15 : Parity according to ethnic groups.

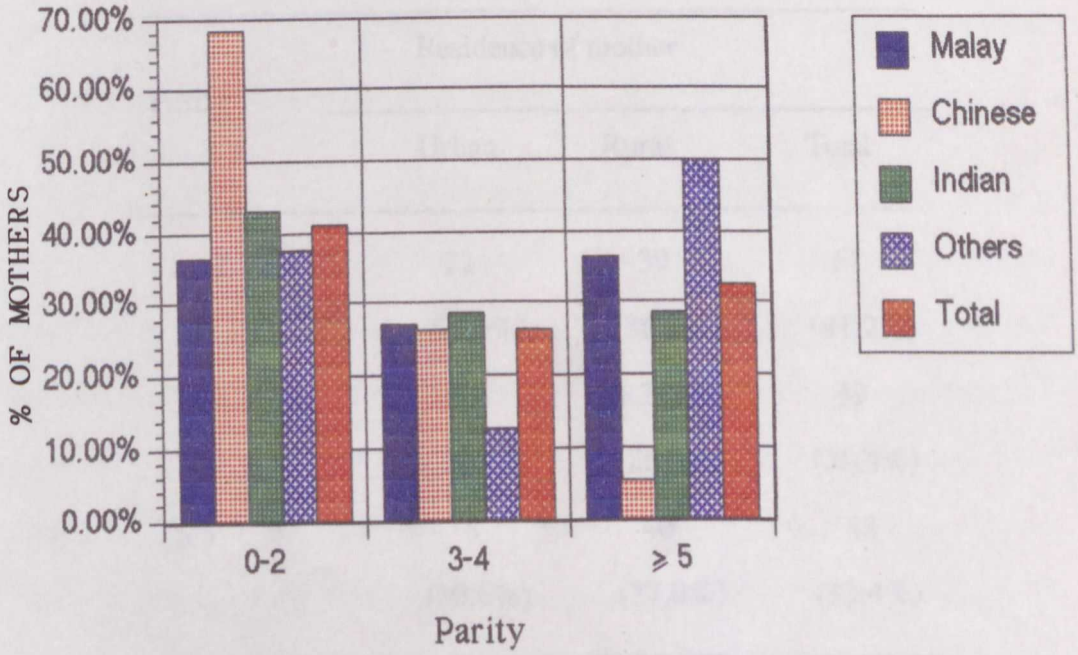


Table 18 : Parity according to residence of mother.

Parity	Residence of mother		
	Urban	Rural	Total
0 - 2	22	39	61
	(55.0%)	(36.1%)	(41.2%)
3 - 4	10	29	39
	(25.0%)	(26.9%)	(26.4%)
⩾ 5	8	40	48
	(20.0%)	(37.0%)	(32.4%)
Total	40	108	148
	(27.0%)	(73.0%)	(100%)

Chi Square Test = 5.1707 df = 2 a = 0.05 0.05 > p > 0.02

1.10. Type of family structure.

84.5% of the mothers were nuclear families whereas 15.5% were having extended families.

2. Antenatal Care.

2.1. Period of gestation at first antenatal visit.

33.1%, 31.1% and 20.3 of the mothers, had their first antenatal visit at 17-20 weeks, 20-24 weeks and 25-28 weeks of gestation respectively. Only 2.7% of the mothers had their first antenatal visit at 12 weeks of gestation.

2.1.1. Period of gestation at first antenatal visit according to age.

All mothers aged19 years and below had their first antenatal visit after 20 weeks period of gestation. Fifty per cent of the mothers who were at the age of 20-24 years had their first antenatal visit at 17-20 weeks period of gestation. A similar pattern was observed among mothers who were at the age of 25-29 years where 48.8% mothers had their first antenatal visit at 20-24 weeks period of gestation. 42.1% of mothers aged 30-34 years had their first antenatal visit at 21-24 weeks period of gestation, while 29.4% of mothers aged 35-39 years had their first antenatal visit at 21-24 weeks and 25-28 weeks period of gestation respectively. 41.7% of mothers who were at the age of 40-44 years had their first antenatal visit at 21-24 weeks period of gestation as shown in Table 19.

Table 19 : Period of gestation at first antenatal visit according to age of mother.

Age group (years)	Gestational Period (weeks)						
	≤ 12	13-16	17-20	21-24	25-28	29-32	Total
	(No. of mother according to gestational period)						
≤ 19	0	0	1	1	1	1	4
	(0 %)	(0 %)	(25.0%)	(25.0%)	(25.0%)	(25.0%)	(2.7%)
20-24	0	4	9	3	1	1	18
	(0 %)	(22.2%)	(50.0%)	(16.6%)	(5.6%)	(5.6%)	(12.1%)
25-29	9	1	20	11	9	0	41
	(22.0%)	(2.4%)	(48.8%)	(26.8%)	(22.0%)	(0 %)	(27.7%)
30-34	1	3	9	16	5	4	38
	(2.6%)	(7.9%)	(23.7%)	(42.1%)	(13.2%)	(10.5%)	(25.7%)
35-39	2	4	8	10	10	0	34
	(5.9%)	(11.8%)	(23.5%)	(29.4%)	(29.4%)	(0 %)	(23.0%)
40-44	0	1	2	5	4	0	12
	(0 %)	(8.3%)	(16.7%)	(41.7%)	(33.3%)	(0 %)	(8.1%)
≥45	1	0	0	0	0	0	1
	(100%)	(0 %)	(0 %)	(0 %)	(0 %)	(0 %)	(0.7%)
Total	4	13	49	46	30	6	148
	(2.7 %)	(8.8%)	(33.1%)	(31.1%)	(20.3%)	(4.0%)	(100%)

2.1.2. Period of gestation at first antenatal care according to educational level.

Mothers without any education or with primary education had their first antenatal check up at 17-28 weeks of gestation, while 76.3% of mothers with lower secondary education and 63.2% of mothers with upper secondary education made their first antenatal visit at 17-24 weeks of gestation as shown in Table 20.

2.1.3. Period of gestation at first antenatal care in relation to ethnic groups.

82.2% of the Malay mothers made their first antenatal check up at 17-28 weeks of gestation, while 79.0% of the Chinese mothers came for their first antenatal check up at 17-24 weeks of gestation and 57.1% of the Indian mothers made their first antenatal check up at 17-20 weeks of gestation as shown in Table 21.

Table 20 : Period of gestation at first antenatal care compared to educational level

POG (weeks)	Education level of mother				
	No Educ.	Primary	Lower Sec.	Upper Sec	Total
≤12	1	1	0	2	4
	(7.1%)	(1.7%)	(0 %)	(5.3%)	(2.7%)
13-16	1	7	2	3	13
	(7.1%)	(12.1%)	(5.3%)	(7.9%)	(8.8%)
17-20	4	17	16	12	49
	(28.6%)	(29.3%)	(42.1%)	(31.6%)	(33.1%)
21-24	4	17	13	12	46
	(28.6%)	(29.3%)	(34.2%)	(31.6%)	(31.1%)
25-28	4	14	6	6	30
	(28.6%)	(24.1%)	(15.8%)	(15.8%)	(20.3%)
29-32	0	2	1	3	6
	(0 %)	(3.5%)	(2.6%)	(7.9%)	(4.0%)
Total	14	58	38	38	148
	(9.4%)	(39.2%)	(25.7%)	(25.7%)	(100%)

NB : POG (Period of gestation)

Table 21 : Period of gestation at first antenatal care in relation to ethnic groups.

POG (weeks)	Ethnic group of mothers				
	Malay	Chinese	Indian	Others	Total
≤12	3	0	1	0	4
	(2.8%)	(0 %)	(7.1%)	(0 %)	(2.7%)
13-16	11	2	0	0	13
	(10.3%)	(10.5%)	(0 %)	(0 %)	(8.8%)
17-20	32	6	8	3	49
	(29.9%)	(31.6%)	(57.2%)	(37.5%)	(33.1%)
21-24	31	9	2	4	46
	(29.0%)	(47.4%)	(14.3%)	(50.0%)	(31.1%)
25-28	25	2	2	1	30
	(23.3%)	(10.5%)	(14.3%)	(12.5%)	(20.3%)
29-32	5	0	1	0	6
	(4.7%)	(0 %)	(7.1%)	(0 %)	(4.0%)
Total	107	19	14	8	148
	(72.3%)	(12.8%)	(9.5%)	(5.4%)	(100%)

NB : POG (period of gestation)

2.1.4. Period of gestation at first antenatal care according to household income.

28.1% , 31.58% and 24.6% of mothers earning an income of $ 350.00 and below made their first antenatal visit at17-20 weeks, 21-24 weeks and 25-28 weeks of gestation respectively. 44.1% and 31.0% of mothers with a monthly household income of $ 351.00-$500.00 came for their first antenatal visit at 17-20 weeks and 21-24 weeks of gestation. 80% of mothers with an income of $501.00- $650.00 made their first antenatal visit at17-28 weeks of gestation, while 54.6% of mothers with a monthly household income of $651.00- $800.00 came for their first antenatal visit at 21-24 weeks of gestation. 38.7% and 29.0% of mothers earning a monthly household income of $801.00 and above had their first antenatal visit at 17-20 weeks and 21-24 weeks of gestation respectively as seen in Table 22. The results show that there is no significant difference between period of gestation during first antenatal visit and the monthly household income.

Table 22 : Period of gestation at first antenatal care according to monthly household income.

POG (weeks)	Monthly Household Income ($)					
	⩽350	351-500	501-650	651-800	⩾801	Total
⩽ 12	2	1	0	0	1	4
	(3.5%)	(3.5%)	(0 %)	(0 %)	(3.2%)	(2.7%)
13-16	6	1	3	2	1	13
	(10.5%)	(3.5%)	(15.0%)	(18.2%)	(3.2%)	(8.8%)
17-20	16	13	6	2	12	49
	(28.1%)	(44.7%)	(30.0%)	(18.2%)	(38.7%)	(33.1%)
21-24	18	9	4	6	9	46
	(31.6%)	(31.0%)	(20.0%)	(54.5%)	(29.1%)	(31.1%)
25-28	14	4	6	1	5	30
	(24.6%)	(13.8%)	(30.0%)	(9.1%)	(16.1%)	(20.3%)
29-32	1	1	1	0	3	6
	(1.7%)	(3.5%)	(5.0%)	(0 %)	(9.7%)	(4.0%)
Total	57	29	20	11	31	148
	(38.5%)	(19.6%)	(13.5%)	(7.4%)	(21.0%)	(100%)

Chi Square Test = 9.7386 df = 12 a = 0.05 $0.7 > p > 0.05$

NB : POG (Period of Gestation)

2.1.5. Period of gestation at first antenatal visit according to residence of mother.

35.0% and 32.5% of urban mothers had their first antenatal care at 17-20 weeks and 21-24 weeks period of gestation respectively. Among the rural mothers, 32.4% and 30.6% had their first antenatal care visit at 17-20 weeks and 21-24 weeks gestation respectively as seen in Table 23. The results show that there is no significant difference between period of gestation during the first antenatal visit and residence of mother.

2.1.6. Period of gestation at first antenatal check up according to parity.

35.7% of primiparas had their first antenatal check up 17-20 weeks of gestation. 43.5%, 41.8% and 45.5% of mothers with parity of 1, 2 and 3 came for their first antenatal check up at 17-20 weeks of gestation, while 47.1% of mothers with parity of 4 had their first antenatal care at 21-24 weeks period of gestation. For mothers with a parity of 6 or more, 35.2% came for their first antenatal care at of 25-28 weeks and another 29.7% had their first antenatal care at 21-24 weeks gestational period as shown in Table 24.

Table 23 : Period of gestation at the first antenatal care according residence of mother.

POG (weeks)	Residence of mothers		
	Urban	Rural	Total
⩽ 12	0	4	4
	(0 %)	(3.7%)	(2.7%)
13-16	2	11	13
	(5.0%)	(10.2%)	(8.8%)
17-20	14	35	49
	(35.0%)	(32.4%)	(33.1%)
21-24	13	33	46
	(32.5%)	(30.6%)	(31.1%)
25-28	7	23	30
	(17.5%)	(21.3%)	(20.3%)
29-32	4	2	6
	(10.0%)	(1.9%)	(4.0%)
Total	40	108	148
	(27.0%)	(73.0%)	(100%)

Chi Square Test = 3.3826 df = 3 a = 0.05 $0.5 > p > 0.3$

NB : POG (Period of gestation)

Table 24 : Period of gestation at first antenatal care according to parity.

POG (wks)	Parity							
	0	1	2	3	4	5	⩾6	Total
⩽12	0	1	0	0	0	0	3	4
	(0 %)	(4.3%)	(0 %)	(0 %)	(0 %)	(0%)	(8.1%)	(2.7%)
13-16	3	2	2	1	2	1	2	13
	(21.4%)	(8.7%)	(8.3%)	(4.5%)	(11.8%)	(9.1%)	(5.4%)	(8.8%)
17-20	5	10	10	10	3	4	7	49
	(35.7%)	(43.5%	(41.8%)	(45.5%)	(17.6%)	(36.4%)	(18.9%)	(33.1%)
21-24	2	85	8	8	4	11	46	
	(14.3%)	(34.8%)	(20.8%)	(36.4%)	(47.1%)	(36.4%)	(29.7%)	(31.1%)
25-28	2	2	5	3	4	1	13	30
	(14.3%)	(8.7%)	(20.8%)	(13.6%)	(23.5%)	(9.1%)	(35.2%)	(20.3%)
29-32	2	0	2	0	0	1	1	6
	(14.3%)	(0 %)	(8.3%)	(0 %)	(0 %)	(9.1%)	(2.7%)	(4.0%)
Total	14	23	24	22	17	11	37	148
	(9.4%)	(15.5%)	(16.2%)	(14.9%)	(11.5%)	(7.5%)	(25.0%)	(100%)

NB : POG (Period of gestation)

2.2. Number of antenatal visits.

The average number of antenatal visit to the health facilities was 10.1 times and the average number of times they were reviewed by the medical officer was 3.6 times. Only 2.7% of the mothers made their first antenatal visit at a12 weeks of gestation, while 8.8% came for their first antenatal visit at 13 - 16 weeks period of gestation. 84.3% of the mothers had their antenatal check up between 17 - 28 weeks of gestation.

2.2.1. Number of antenatal visits according to period of gestation at first antenatal care.

Mothers who came earlier for their first antenatal visit tend to have more number of total antenatal visits compared to their counterparts who came much later. 75% of the the cases who had their first antenatal check up at12 weeks of gestation or less made 11 or more antenatal visits, while 83.3% of those who came for their first antenatal visit at 29-32 weeks of gestation, visited the antenatal care clinic 6 to10 times as shown in Table 25.

2.2.2. Number of antenatal visit according to age of mother.

All mothers aged19 years or less made more than 6 antenatal visits. 50.5% of mothers aged between 20-34 years old had 6-10 antenatal visits followed by 43.3% who visited the antenatal clinic 11 or more times. Only 8.1% of mothers had a total of 1-5 antenatal visits as seen in Table 26.

Table 25 : Period of gestation according to number of antenatal visits.

POG (weeks)	No. of antenatal visits (times)			
	1-5	6-10	⩾11	Total
⩽12	0	1	3	4
	(0 %)	(25.0%)	(75.0)	(2.7%)
13-16	0	2	11	13
	(0 %)	(15.4%)	(84.6%)	(8.8%)
17-20	2	24	23	49
	(4.1%)	(49.0%)	(46.9%)	(33.1%)
21-24	3	27	16	46
	(14.5%)	(50.7%)	(34.8%)	(31.1%)
25-28	6	17	7	30
	(20.0%)	(56.7%)	(23.3%)	(20.1%)
29-32	1	5	0	6
	(17.7%)	(83.3%)	(0 %)	(4.0%)
Total	12	76	60	148
	(8.1%)	(51.4%)	(40.5%)	(100%)

NB : POG (Period of gestation)

Table 26 : Number of antenatal visit according to age of mother.

Age group (years)	No. of antenatal visits (times)			
	1-5	6-10	≥11	Total
≤19	0	2	2	4
	(0 %)	(50.0%)	(50.0%)	
20-24	0	8	10	18
	(0 %)	(44.4%)	(55.6%)	
25-29	2	20	19	41
	(4.9%)	(48.8%)	(46.3%)	
30-34	4	21	13	38
	(10.5%)	(55.3%)	(34.2%)	
35-39	4	19	11	34
	(11.8%)	(55.9%)	(32.3%)	
40-44	2	6	4	12
	(16.7%)	(50.0%)	(33.3%)	
≥45	0	0	1	1
	(0 %)	(0 %)	(100%)	
Total	12	76	60	148

2.2.3. Number of antenatal visit according to educational level.

Most mothers with no education, with primary education and with lower secondary education made a total of 6-10 visits while majority of mothers with upper secondary education made 11 or more antenatal visits as shown in Table 27.

The results also showed that there was no significant difference between level of education of mothers and number of antenatal visits made by mothers.

2.2.4. Number of antenatal visit according to ethnic groups.

45.79% of Malay mothers made a total of 6-10 visits. Majority of Indian and Chinese mothers had a total 6-10 times antenatal care visits as seen in Table 28 . The results showed that there was no significant difference between total number of antenatal visits made by mother and their ethnic groups.

2.2.5. Number of antenatal visit according residence of mother.

Seventy per cent of the urban mothers made a total of 6-10 antenatal care, while 44.4% and 48.2% of the rural mothers made a total of 6-10 and 11 or more antenatal care respectively as seen in Table 29. The results show that there is a significant difference between residence of mother and number of antenatal visits made by the mother.

Table 27 : Number of antenatal visit according to educational level of mother.

Education level	No. of antenatal visits (times)			
	1-5	6-10	≥11	Total
No education	3	6	5	14
	(21.4%)	(42.9%)	(35.7%)	(9.4%)
Primary	4	33	21	58
	(6.9%)	(56.9%)	(36.2%)	(39.2%)
Lower Secondary	3	21	14	38
	(7.9%)	(55.3%)	(36.8%)	(25.7%)
Upper secondary	2	16	20	38
	(5.3%)	(42.1%)	(52.6%)	(25.7%)
Total	12	76	60	148
	(8.1%)	(51.4%)	(40.5%)	(100%)

Chi Square Test = 13.592 df = 6 a = 0.05 $0.3 > p > 0.2$

Table 28 : Number of antenatal visit according to ethnic groups.

Ethnic group	No. of antenatal visits (times)			
	1-5	6-10	⩾ 11	Total
Malay	9	49	49	107
	(8.4%)	(45.8%)	(45.8%)	(72.3%)
Chinese	1	13	5	19
	(5.3%)	(68.4%)	(26.3%)	(12.8%)
Indian	1	11	2	14
	(7.1%)	(78.6%)	(14.3%)	(9.5%)
Others	1	3	4	8
	(12.5%)	(37.5%)	(50.0%)	(5.4%)
Total	12	76	60	148
	(8.1%)	(51.4%)	(40.5%)	(100%)

Chi Square Test = 6.6808 df = 6 a = 0.05 0.5 > p 3 0.1

2.2.6. Number of antenatal visit according to parity.

57.1% of primiparas made11 or more antenatal visits. 49.2% and 45.9% of mothers with parity of 0-2 made 6-10 and ⩾11 antenatal visits respectively. 47.9% and 35.4% of mothers with parity of 5 and above made 6-10 and 11 or more antenatal visits respectively as shown in Table 30. The table also show that there is a significant difference between number of antenatal visits made by the mother and parity.

Table 29 : Number of antenatal visits according to residence of mother.

Residence of mother	No. of antenatal visits (times) 1-5	6-10	⩾11	Total
Urban	4 (10.0%)	28 (70.0%)	8 (20.0%)	40 (27.0%)
Rural	8 (7.4%)	48 (44.4%)	52 (48.2%)	108 (73.0%)
Total	12 (8.1%)	76 (51.4%)	60 (40.5%)	148 (100%)

Chi Square Test = 9.662 df = 2 a = 0.05 $p < 0.01$

Table 30 : Number of antenatal visits according to parity.

Parity	No. of antenatal visits(times)			
	1-5	6-10	⩾11	Total
0 - 2	3	30	28	61
	(4.9%)	(49.2%)	(45.9%)	(41.2%)
3 - 4	1	23	15	39
	(2.6%)	(59.0%)	(38.4%)	(26.4%)
⩾5	8	23	17	48
	(16.7%)	(47.9%)	(35.4%)	(32.4%)
Total	12	76	60	148
	(8.1%)	(51.4%)	(40.5%)	(100%)

3. Risk Factors.

The 5 main risk factors identified among the high risk pregnant mothers under study are :-

1. Preeclampsia /eclampsia (23.7%)
2. Anaemia (19.6%)
3. Overdue (11.5%)
4. History of previous delivery by Caesarian (10.1%)
5. History of retained placenta and post partum haemorrhage (6.8%)

27 (18.2%) of the mothers were coded red or yellow due to previous bad obstetric history and 78 (57.7%) of the mothers were coded red or yellow due to present and previous high risk factors identified during the pregnancy.

4. Referals.

All the high risk pregnant mothers coded red and yellow were refered to the doctors, either at the health centre or the hospital. Out of the 106 (71.6%) mothers refered to the hospital, only 94 (88.7%) mothers went to the hospital. 60.6% of the mothers who went to the hospital were accompanied by husbands, 17.0% by health staffs, 8.5% by both husband and health staff while the remainder were either accompanied by other relatives or friends.

80 (82.5%) mothers refered to the hospital were adviced to go for admission, but only 95 (93.8%) of the mothers agreed.

The reasons given by mothers who went for admission were :-

- For mother own safety and baby's safety (62.7%)
- Followed advice given by the doctor (10.7%)
- For both the above mentioned reason (21.3%)
- Other reasons (5.3%)

The reasons for refusal for hospital admission given by mothers were :-

1. Afraid to be treated at the hospital (11.1%)
2. Do not have money to pay hospital bil (22.2%)
3. Nobody to look after other children at home (22.2%)
4. Combination of reasons No. 2 and 3 (22.2%)
5. Wanted to get husband's permission and reason No. 1& 3 (22.2%)

All mothers were given further advice after they refused to get admitted. 77.8% of the advice were given to mothers only, 11.1% were given to both mother and husband and 11.1% were given to mothers and other family members.

5. Home visits

Out of the total of 148 mothers only 43.2% of the cases were given follow up visit by the health staffs after the risk factors were identified. The average number of home visit was 2.1 times. The number of home visits were as follows: -

- Once (40.6%)
- Twice (32.8%)
- Three times (14.1%)
- Four times (6.3%)

- Five times (4.7%)
- Eleven times (1.6%)

6. Place of delivery.

Majority of the mothers (98.7%) were given advice for hospital delivery, while the other two were advised for home delivery or was not given any advice at all inspite that they had been identified for institutionalised delivery.

49.3% of the high risk pregnant mothers made the decision for choice of place of delivery were made during the first 6 months of pregnancy, while16.2% made the decision at 7-8 months of gestation, 18.9% at term, 14.2% when they had labour pain and the remaining 1.3% after developing complication during labour or post partum period.

58.8% of mothers made their own decision regarding place of delivery whereas in 9.5% of the cases the decision were made by husband, 19.6% by husband and motherand the remaining were influenced by other family members or health personnels.

73.7% of the high risk pregnant mothers delivered at the hospital followed by 24.3% at home, 1.3% on the way to the hospital and 0.7% at the health centre.

87.8 of the mothers had normal delivery, 0.7% by forceps extraction, 2.0% by vacuum extraction and 9.5% by caesarean.

Majority of the hospital deliveries were conducted by nursing personnels (68.8%) mainly by the midwives, while 31.2% were conducted by doctors. This is due to the fact that there is a shortage of doctors at the hospital to manage all deliveries. However, all deliveries attended by the nursing personnels were under the supervision of the doctors or consultant obstetrician.

As for the home deliveries, 66.7% were conducted by the midwives / community nurses and 11.1% respectively were attended by othe health personnels, traditional birth attendants or born before the arrival of midwife.

6.1. Place of delivery according to age of mother

All mothers aged19 years or less had hospital deliveries. Majority of the high risk pregnant mothers belonging to younger age group (20 - 34) years tend to deliver at the hospital whereas the only mother who was above 45 years old delivered at home as shown in Table 31.

6.2. Place of delivery according to educational level of mother.

50% of mothers who had no education delivered at home. However, 70.7%, 79.0% and 84.2% of mothers with primary, lower secondary and upper secondary education respectively had hospital deliveries as seen in Table 32. The results also show that there is a significant difference between level of education of mothers and place of delivery.

Table 31 : Place of delivery according to age of mother.

Age group (years)	Place of delivery				
	Hospital	Home	*Vehicle	Health Centre	Total
⩽ 19	4	0	0	0	4
	(100%)	(0 %)	(0 %)	(0 %)	(2.7%)
20-24	14	4	0	0	18
	(77.8%)	(22.2%)	(0 %)	(0 %)	(12.1%)
25-29	30	11	0	0	41
	(73.2%)	(26.8%)	(0 %)	(0 %)	(27.7%)
30-34	30	6	1	1	38
	(79.0%)	(15.8%)	(2.6%)	(2.6%)	(25.7%)
35-39	22	11	1	0	34
	(64.7%)	(32.4%)	(2.9%)	(0 %)	(23.0%)
40-44	9	3	0	0	12
	(75.0%)	(25.0%)	(0 %)	(0 %)	(8.1%)
⩾45	0	1	0	0	1
	(0 %)	(100%)	(0 %)	(0 %)	(0.7%)
Total	109	36	2	1	148
	(73.7%)	(24.3%)	(1.3%)	(0.7%)	(100%)

* Vehicle : ambulance or car

Table 32 : Place of delivery according to educational level of mother.

Education level	Place of delivery			
	Hospital	Home	Others	Total
No education	6	7	1	14
	(42.9%)	(50.0%)	(7.1%)	(9.4%)
Primary	41	16	1	58
	(70.7%)	(27.6%)	(1.7 %)	(39.2%)
Lower & Upper sec.	62	13	1	76
	(81.6%)	(17.1%)	(1.3%)	((51.4%)
Total	109	36	3	148
	(73.7%)	(24.3%)	(2.0%)	(100%)

Chi Square Test = 10.7537 df = 4 a = 0.05 0.05 > p > 0.02

6.3 Place of delivery according residence of mother.

83.3% of mothers who delivered at home were from the rural area. Table 33 showed that 82.5% of urban mothers and 70.4% of rural mothers respectively delivered at the hospital. The results also showed that there was no significant difference between place of delivery and residence of mother.

6.4. Place of delivery according to ethnic group of mother.

69.2% and 29.9% of Malay mothers delivered at the hospital and at home respectively whereas 100% of Chinese mothers delivered at the hospital, 85.7% Indian mothers and 50% of mothers from other ethnic group respectively delivered at the hospital as shown in Table 34 .

6.5 Place of delivery according to monthly household income.

59.7% and 38.6% of mothers with a monthly household income of $350.00 or less delivered at the hospital and at home respectively. 81.6% and 83.3%, of mothers with a monthly household income of $ 351.00 to $500.00, and $651.00 and above delivered at the hospital. Table 35 show that there is a significant difference between place of delivery and monthly household income.

Table 33 : Place of delivery according to residence of mother.

Residence of mother	Place of delivery			
	Hospital	Home	Others	Total
Urban	3 (82.5%)	6 (15.0%)	1 (2.5%)	40 (27.0%)
Rural	76 (70.4%)	30 (27.8%)	2 (1.8%)	108 (73.0%)
Total	109 (73.7%)	36 (24.3%)	3 (2.0%)	148 (100%)

Chi Square test = 2.6036 df = 2 a = 0.05 0.3 > p > 0.2

Table 34 : Place of delivery according to ethnic groups of mother.

Ethnic Group	Place of delivery				
	Hospital	Home	*Vehicle	Health Centre	Total
Malay	74 (69.2%)	32 (29.9%)	0 (0 %)	1 (0.9%)	107 (72.3%)
Chinese	19 (100%)	0 (0 %)	0 (0 %)	0 (0 %)	19 (12.8%)
Indian	12 (85.8%)	1 (7.1%)	1 (7.1%)	0 (0 %)	14 (9.5%)
Others	4 (50.0%)	3 (37.5%)	1 (12.5%)	0 (0 %)	8 (5.4%)
Total	109 (73.7%)	36 (24.3%)	2 (1.3%)	1 (0.7%)	148 (100%)

* Vehicle : ambulance or car.

Table 35 : Place of delivery according to monthly household income.

Household income	Place of delivery			
	Hospital	Home	Others	Total
⩽ $ 350.00	34	22	1	57
	(59.7%)	(38.6%)	(1.7%)	(38.5%)
$351.00-$650.00	40	8	1	49
	(81.6%)	(16.3%)	(2.1%)	(33.1%)
⩾ $651.00	35	6	1	42
	(83.3%)	(14.3%)	(2.4%)	(28.4%)
Total	109	36	3	148
	(73.7%)	(24.3%)	(2.0%)	(100%)

Chi Sqaure Test = 10.337 df = 4 a = 0.05 0.05 > p > 0.02

6.6. Place of delivery according to parity.

All primiparas delivered at the hospital. and 91.8% of mothers with parity of 0 - 2 delivered in the hospital, while 56.2% and 41.7% of mothers with parity 5 and above delivered in the hospital and at home respectively as seen in Table 36.

6.7. Place of delivery in relation to the distance of house to nearest hospital.

Majority of mothers (73.7%) delivered at the hospital irrespective of the distances of house to the nearest hospital as shown in Table 37.

6.8. Place of delivery according to type of family structure.

Majority of mothers (95.6%) living with an extended family 68.0% mothers with nuclear family delivered at the hospital as shown in Table 38.

6.9. Reasons for hospital delivery.

The main reason for hospital delivery were because it was safe and well equipped with modern facilities (58.8%) and mothers were advised by the health personnels. Other reasons were :-

- Family members wanted her to deliver at the hospital (18.9 %)
- Mothers were sent to the hospital after developing complications during delivery (10.1 %)
- Mothers were already admitted to the hospital while awaiting delivery (6.8 %)
- The hospital was near mother's house (3.4 %)

Some mothers gave more than one reason for choosing hospital delivery.

Table 36 : Place of delivery according to parity.

Parity	Place of delivery			
	Hospital	Home	Others	Total
0 - 2	56	5	0	61
	(91.8%)	(8.2%)	(0 %)	(41.2%)
3 - 4	26	11	2	39
	(66.7%)	(28.2%)	(5.1%)	(26.4%)
⩾ 5	27	20	1	48
	(56.2%)	(41.7%)	(2.1%)	(32.4%)
Total	109	36	3	148
	(73.7%)	(24.3%)	(2.0%)	(100%)

Table 37 : Place of delivery in relation to the distance of house to nearest hospital

Distance to nearest hospital (km)	Place of delivery				
	Hospital	Home	Transport	Health Centre	Total
0-19	38	5	0	0	43
	(88.4%)	(11.6%)	(0 %)	(0 %)	(29.1%)
20-39	27	10	0	0	37
	(73.0%)	(27.0%)	(0 %)	(0 %)	(25.0%)
40-59	20	8	1	0	29
	(69.0%)	(27.6%)	(3.4%)	(0 %)	(19.6%)
60-79	11	3	0	1	15
	(73.3%)	(20.0%)	(0 %)	(6.7%)	(10.1%)
80-99	10	10	0	0	20
	(50.0%)	(50.0%)	(0 %)	(0 %)	(13.5%)
⩾100	3	0	1	0	4
	(75.0%)	(0 %)	(25.0%)	(0 %)	(2.7%)
Total	109	36	2	1	148
	(73.7%)	(24.3%)	(1.3%)	(0.7%)	(100%)

Table 38 : Place of delivery according to type of family structure.

Family structure	Place of delivery				
	Hospital	Home	Transport	Health Centre	Total
Husband	85 (68.0%)	37 (29.6%)	2 (1.6%)	1 (0.8%)	125 (84.5%)
Husband and parent	7 (100%)	0 (0 %)	0 (0 %)	0 (0 %)	7 (4.7%)
Husband & in law	13 (92.9%)	1 (7.1%)	0 (0 %)	0 (0 %)	14 (9.5%)
Husband and others	2 (100%)	0 (0 %)	0 (0 %)	0 (0 %)	2 (1.3%)
Total	109 (73.7%)	36 (24.3%)	2 (1.3%)	1 (0.7%)	148 (100%)

7. Number of days mothers were hospitalised after delivery.

The average number of hospital stay after delivery was 2.6 days. 47.7% of mothers were hospitalised for only a day , 20.0%, 3.7%, 4.6%, 5.5% and 8.3% for 2, 3, 4, 5, and 7 days. The others (10.2%) stayed at the hospital from 8 to 35 days and the longest hospital stay was for 35 days while the shortest was for half a day.

84.7% of the mothers said that the services given at the hospital was satisfactory, while another 8.1% said that it was very satisfactory and 7.2% said that it was not satisfactory.

10.1% of the mothers felt that it was very difficult to get ambulance services. 23.7% said that ambulance services was satisfactory and 60.1% claimed that they did not know much about ambulance services.

8. Home delivery

48.7% of mothers who delivered at home claimed that they chose home delivery because they always had an easy labour. 43.6% delivered at home because they had short labour and had no time to go to the hospital. The other reasons given for home deliveries were :-

- Nobody to look after other children at home (30.8%)
- Usually the services given by the hospital staff is not satisfactory (28.2%)
- No transport to go to the hospital (23.1%)
- Scared to undergo operative procedure if delivered at the hospital (18.0%)

- Unable to pay the hospital bill (18.0%)
- Not used to the hospital conditions (12.8%)

Some mothers gave more than one reason for home delivery.

18.0% of the mothers who delivered at home either used the service of the traditional midwife or delivered without the presence of any midwife (born before arrival). The reasons given for this were : -

- No time to call the goverment midwife (85.7%)
- The traditional midwife gave other services such as massage, washing the placenta, ritual rites and other services besides conducting delivery (42.9%)
- The village midwife stayed near the mother's house (28.6%)
- Scared to go to the hospital (28.6%)
- Family chose the village midwife (28.6%)
- Very close to the village midwife (14.3%)

Reasons for choosing government midwives during home deliveries were : -

- The government midwife is well trained and use modern methods (68.8%)
- Free services were provided (34.4%)
- Asked by the traditional midwife to call the government midwife (15.6%)
- Family chose the government midwife (9.4%)
- Closeto the government midwife (9.4%)

9. Transport

75.7% of the areas were served by the public transport. 42.0% of the areas had the public transport available all the time throughout the day, 14.3% had transport available every hour, 32.3% had transport twice a day (during the daytime) and 3.5% had irregular transport services.

The most common transport used by the mothers to go to the nearest midwifery home or community clinic was motorcycle which were utilised by 56.5% of the mothers. 30.4% of the mothers were staying within walking distance from the clinic, but about 4.4% were still using the boat services to cross the river before reaching the clinic.

61.2% of mothers used motorcycle to go to the nearest health centre, while 13.6% and 6.8% used the bus and taxi services respectively. 9.7 % of the mothers walked to the health centre. Other means of transport utilised were own car, bicycle and boat services.

34.5% of the mothers used their own car to go to the hospital while 29.7% had to hire taxi, 10.1% of the mothers used the ambulance services and the others had to depend on neighbours' / friends' car.

10. Post Natal Care

Majority of mothers (98.7%) were given post natal care at home irrespective of their place of delivery. There were two mothers who were not given post natal care because they went back to their mother's house in a different district immediately after being discharged from the hospital. Both mothers delivered at the hospital and were discharged 2 days after delivery.

The average number of post natal care given by the health staff to each mother at home was 4.7 times. 14.4 % , 11.6% and 16.4% of the mothers had 3, 4 and 5 postnatal nursings while 13.1% respectively had 2,6 and 7 had postnatal nursings. The maximum number of postnatal nursing given was twenty times.

11. Knowledge regarding risk factors

66.9% of the mothers were able to identify preeclampsia/eclampsia during pregnancy as a risk factor. This were then followed by : -

- Anaemia (57.7%)
- Retained placenta (42.3%)
- Antepartum haemorrhage (46.6%)
- Post partum haemorrhage (34.5%)
- Heart problems (31.1%)
- Overdue (28.4%)
- Abnormal lie during delivery (27.0%)
- History of previous caesarean section (26.4%)
- Gravida 6 and above (24.3%)

- History of stillbirth during previous pregnancy (21.0%)
- Preterm labour (20.3%)
- Age above 40 years old (20.3%)
- Twin /multiple pregnancy (16.2%)

52.7% of the mothers were able to identify 1-4 risk factors and only 5.4% were able to name more than 15 risk factors.

11.1. Knowledge of risk factors according to age of mother.

Fifty per cent of the mothers aged 19 years and below were able to identify between 1-4 and 10-14 risk factors respectively. Mothers aged 20-34 years most of the mothers were able to name 1-4 risk factors (48.5%) followed by 5-9 risk factors (35.1%). Majority of the mothers (61.7%) aged 35 years and above were able to name 1-4 risk factors. Very few mothers (5.4%) were able to identify more than 15 risk factors as seen in Table 39.

11.2. Knowledge of risk factor according to ethnic groups.

46.7 % and 37.7%of the Malay mothers were able to identify 1 to 4 and 5 to 9 risk factors respectively. Chinese mothers were able to identify between 1 to 14 risk factors of which 52.6% of the mothers identified 1-4 risk factors and 42.1% identified 5-9 risk factors. The Indian mothers were able to identify between 1 to 9 risk factors and 78.6% of the mothers identified between 1 to 4 risk factors (Table 40).

Table 39 : Knowledge of risk factors according to age of mother

Age group (years)	Risk factors				
	1-4	5-9	10-14	15-19	Total
≤19	2	0	2	0	4
	(50.0%)	(0 %)	(50.0%)	(0 %)	(2.7%)
20-24	6	7	5	0	18
	(33.3%)	(38.9%)	(27.8%)	(0 %)	(12.1%)
25-29	21	11	6	3	41
	(51.2%)	(26.9%)	(14.6%)	(7.3%)	(27.7%)
30-34	20	16	0	2	38
	(52.6%)	(42.1%)	(0 %)	(5.3%)	(25.7%)
35-39	21	9	2	2	34
	(61.8%)	(26.4%)	(5.9%)	(5.9%)	(23.0%)
40-44	8	2	1	1	12
	(66.7%)	(16.7%)	(8.3%)	(8.3%)	(8.1%)
≥45	0	1	0	0	1
	(0 %)	(100%)	(0%)	(0%)	(0.7%)
Total	78	46	16	8	148
	(52.7%)	(31.1%)	(10.8%)	(5.4%)	(100%)

Table 40 : Knowledge of risk factors according to ethnic groups.

Ethnic group	Risk factors				
	1-4	5-9	10-14	15-19	Total
Malay	50	35	15	7	107
	(46.7%)	(32.7%)	(14.0%)	(6.6%)	(72.3%)
Chinese	10	8	1	0	19
	(52.6%)	(42.1%)	(5.3%)	(0 %)	(12.8%)
Indian	11	3	0	0	14
	(78.6%)	(21.4%)	(0 %)	(0 %)	(9.5%)
Others	7	0	0	1	8
	(87.5%)	(0 %)	(0 %)	(12.5%)	(54.%)
Total	78	46	16	8	148
	(52.7%)	(31.1%)	(10.8%)	(5.4%)	(100%)

11.3. Knowledge of risk factors according to educational level of mother.

Mothers with no education were able to identify 1-9 risk factors, while mothers with primary education were able to identify 1-14 risk factors. Mothers with lower and upper secondary education were able to identify 1-19 risk factors as shown in Table 41.

11.4. Knowledge of risk factors according to residence of mother.

52.8% and 27.8% of rural mothers were able to identify 1 - 4 and 5 - 9 risk factors respectively, while 52.5% and 40.0% of urban mothers were able to identify almost the same number of risk factors respectively as shown in Table 42.

Table 41 : Knowledge of risk factors according to educational level.

Education level	Risk factors 1-4	5-9	10-14	15-19	Total
No education	10 (71.4%)	4 (28.6%0	0 (0 %)	0 (0 %)	14 (9.5%)
Primary	41 (70.7%)	13 (22.4%)	4 (6.9%)	0 (0 %)	58 (39.2%)
Lower Sec	14 (36.8%)	18 (47.4%)	2 (5.3%)	4 (10.5%)	38 (25.7%)
Upper Sec.	13 (34.2%)	11 (29.0%)	10 (26.3%)	4 (10.5%)	38 (25.7%)
Total	78 (52.7%)	46 (31.1%)	16 (10.8%)	8 (5.4%)	148 (100%)

Table 42 : Knowledge of risk factors according to residence of mother.

Residence 0f mother	Risk factors				
	1-4	5-9	10-14	15-19	Total
Urban	21 (52.5%)	16 (40.0%)	1 (2.5%)	2 5.0%)	40 (27.0%)
Rural	57 (52.8%)	30 (27.8%)	15 (13.9%)	6 (5.5%)	108 (73.0%)
Total	78 (52.7%)	46 (31.1%)	16 (10.8%)	8 (5.4%)	148 (100%)

12. Family planning.

91.2 % of the mothers were advised on family planning. 77.7% of the advice were given by the health staff; 8.1% by the health staff and family members; and 1.3% by health staff and friends; 1.3% by friends and 0.7% by family. The remainder were advised by combination of health staffs, friends or others.

62.2% of the mothers under study had practised family planning before the present childbirth. The various methods they had ever used were : -

- Contraceptive pills (54.3%)
- Injection (0.7%)
- Intrauterine device (0.7%)
- combination of oral contraceptive and condom (0.7%)
- combination of oral contraceptive and traditional herbs/jamu (1.3%)
- Condom (6.5%)
- Calender method (7.6%)
- Combination of condom and calender method (0.7%)
- Abstinence (0.7%)
- Combination of abstinence and condom (0.7%)
- Combination of abstinence and traditional herbs/jamu (0.7%)
-Traditional herbs/jamu (18.5%)
- Combination of traditional herbs/jamu and exercise (3.3%)

73.7% of the mothers currently intend or had already practised family planning, 12.2% did not intend to practise any form of family planning and 14.2% had not made any decision during the period of the survey. The methods to be used or already used were :-

- Oral contraceptive	(41.3%)
- Sterilisation	(9.2%)
- Injection	(3.7%)
- Intrauterine device	(2.7%)
- Combination of oral contraceptive and condom	(0.9%)
- Condom	(6.4%)
- Calender method	(6.4%)
- Abstinence	(0.9%)
- Combination of abstinence and condom	(0.9%)
- Exercise	(0.9%)
- Traditional herbs/jamu	(22.9%)
- Combination of calender method, Traditional herbs.jamu and exercise	(0.9%)
- Combination of exercise and traditional herbs/jamu	(3.7%)
- Combination of abstinence and traditional herbs/jamu	(0.9%)

58.7% of the mothers made their own choice with or without the advise of the others. 46.8% of them others practised the methods as advised by the health personnels, while 22.9% by their husband, 14.7% by other family members and 3.7% by others.

85.3% of the mothers made their own decision on choice of methods with or without the influence of others. 61.5% were made by mothers alone, 11.0% by their husband, 2.7% by friends 1.8% by other family members and 3.7% by health staffs. 34.9% of the husbands helped to choose the type of family planning methods to be used by the wife.

12.1. Relation between family planning practice and ethnic group

71.0% of Malay mothers intend to practise family planning , while 11.2% intend not to and 17.8% has not made any decision yet during the period of survey. 89.5% of the Chinese mothers and of the Indian mothers respectively intend to practise family planning while the remaining decide not to (Table 43).

12.2. Family planning practice according to education level.

57.1% of mothers without any education intend to practice family planning while 70.7% of mothers with primary education, 68.4% of mothers with lower secondary education and 89.5% of mothers with upper secondary education respectively intend to practise family planning as shown in Table 44. The result also show that there is a significant difference between family planning practice and the level of education of the mothers.

Table 43 : Intention to practise family planning according to ethnic groups.

Ethnic Group	Intention to practise Family Planning			
	Yes	No	Not sure	Total
Malay	76 (71.0%)	12 (11.2%)	19 (17.8%)	107 (72.3%)
Chinese	17 (89.5%)	1 (5.3%)	1 (5.3%)	19 (12.8%)
Indian	11 (78.6%)	3 (21.4%)	0 (0 %)	14 (9.5%)
Others	5 (62.5%)	2 (25.0%)	1 (12.5%)	8 (5.4%)
Total	109 (73.6%)	18 (12.2%)	21 (14.2%)	148 (100%)

Table 44 : Intention to practise family planning according to educational level.

Education	Family planning			
	Yes	No	Not sure	Total
No education	8 (57.1%)	5 (35.7%)	1 (7.1%)	14 (9.5%)
Primary	41 (70.7%)	7 (12.1%)	10 (17.2%)	58 (39.2%)
Lower Sec.	26 (68.4%)	4 (10.5%)	8 (20.1%)	38 (25.7%)
Upper Sec.	34 (89.5%)	2 (5.3%)	2 (5.3%)	38 (25.7%)
Total	109 (73.6%)	18 (12.2%)	21 (14.2%)	148 (100%)

Chi Square Test = 14.176 df = 6 a = 0.05 $0.05 > p > 0.02$

12.3. Family planning practice according to residence of mother.

72.5% of urban mothers intend to practise family planning compared to 74.07% that of the rural mothers as seen in Table 45. The results also show that there is no significant difference between family planning practice and residence of mother.

12.4. Family planning practice according to age of mother.

75% of mothers aged 19 years and below, 83.3% of mothers aged 20-24 years, 78.1% of mothers aged 25-29 years, 71.1% of mothers aged 30-34 years, 73.5% of mothers aged 35-39 years and 58.3% of mothers aged 40-44 years intend to practice family planning as shown in Table 46. The results also show that there is no significant difference between age of mother and intention to practise family planning.

12.5. Family planning practice according to parity.

85.7% of the primiparas intend to practice family planning while 82.6%, 79.2%, 63.6%, 76.4%, and 81.8% of mothers with parity1, 2, 3, 4 and 5 respectively intend to practise family planning. 62.2% of mothers with parity 6 and above intend to practice family planning, 16.2% decide not to and the remainder has not yet made any decision during the survey period as seen in Table 47. Table 48 show that there is no significant difference between parity and family planning practice among the mothers under study .

12.6. Family planning practice according to birth interval.

69.2% of mothers with a birth interval of 0-24 months had not decided whether to practise family planning or not. However 66.7% , 80.0% and 96.9% of mothers with birth interval of 25-48 months, 49-72 months and 73 months and above intend to practice family planning (Table 49).

Table 45 : Intention to practise family planning according to residence of mother.

Residence of mother	Intention to practise family panning			
	Yes	No	Not sure	Total
Urban	29 (72.5%)	5 (12.5%)	6 (15.0%)	40 (27.0%)
Rural	80 (74.1%)	13 (12.0%)	15 (13.9%)	108 (73.0%)
Total	109 (73.6%)	18 (12.2%)	21 (14.2%)	148 (100%)

Chi Square Test = 0.0764 df = 3 a = 0.05 p > 0.99

Table 46 : Intention to practise family planning according to age of mother.

Age (years)	Intention to practise family planning			
	Yes	No	Not sure	Total
⩽ 24	18	1	3	22
	(81.8%)	(4.6%)	(13.6%)	(14.9%)
25-29	32	6	3	41
	(78.1%)	(14.6%)	(7.3%)	(27.7%)
30-34	27	4	7	38
	(71.1%)	(10.5%)	(18.4%)	(25.6%)
35-39	25	4	5	34
	(73.5%)	(11.8%)	(14.7%)	(23.0%)
⩾ 40	7	3	3	13
	(53.8%)	(23.1%)	(23.1%)	(8.8%)
Total	109	18	21	148
	(73.6%)	(12.2%)	(14.2%)	(100%)

Chi Square Test = 5.2284 df = 8 a = 0.05 $0.8 > p > 0.7$

Table 47 : Intention to practise family planning according to parity.

Parity	Intention to practise family planning			
	Yes	No	Not sure	Total
0	12 (85.7%)	2 (14.3%)	0 (0 %)	14 (9.5%)
1	19 (82.6%)	3 (13.1%)	1 (4.3%)	23 (15.5%)
2	19 (79.2%)	3 (12.5%)	2 (8.3%)	24 (16.2%)
3	14 (63.6%)	2 (9.1%)	6 (27.3%)	22 (14.9%)
4	13 (76.4%)	2 (11.8%)	2 (11.8%)	17 (11.5%)
5	9 (81.8%)	0 (0 %)	2 (18.2%)	11 (7.4%)
≥6	23 (62.2%)	6 (16.2%)	8 (21.6%)	37 (25.0%)
Total	109 (73.6%)	18 (12.2%)	21 (14.2%)	148 (100%)

Table 48 : Intention to practise family planning in relation to parity.

Parity	Intention to practise family planning			
	Yes	No	Not sure	Total
0-2	50 (45.9%)	8 (44.5%)	3 (14.3%)	61 (41.2%)
3-4	27 (24.8%)	4 (22.2%)	8 (38.1%)	39 (26.4%)
≥5	32 (29.3%)	6 (33.3%)	10 (47.6%)	48 (32.4%)
Total	109 (73.6%)	18 (12.2%)	21 (14.2%)	148 (100%)

Chi Square Test = 9.7261 df = 8 a = 0.05 $0.5 > p > 0.2$

Table 46 : Intention to practise family planning according to birth interval.

Birth interval (mths)	Intention to practise family planning			
	Yes	No	Not sure	Total
0-24	2 (15.4%)	2 (15.4%)	9 (69.2%)	13 (8.8%)
25-48	36 (66.7%)	11 (20.4%)	7 (12.9%)	54 (36.5%)
49-72	28 (80.0%)	2 (5.7%)	5 (14.3%)	35 (23.6%)
⩾ 73	31 (96.9%)	1 (3.1%)	0 (0 %)	32 (21.6%)
Primiparas	12 (85.7%)	2 (14.3%)	0 (0 %)	14 (9.5%)
Total	109 (73.6%)	18 (12.2%)	21 (14.2%)	148 (100%)

DISCUSSION.

In Malaysia, emphasis has been given to the "risk approach" as means to improve maternal and child health services. Guidelines has been developed for the management of the high risk pregnant mothers to reduce maternal mortality. Temerloh health district had been identified to have problems of high maternal mortality. This study was thus aimed to identify the health status of high risk pregnant mothers and develop a more effective management strategy for the high risk mothers.

Most of the mothers identified were from the the rural areas (73.0%), aged 35 years and above (31.8%), with primary or no education (43.9%), most of them were housewives (77.7%) and having a monthly household income of $350.00 and below (38.5%) . Majority of the mothers first got married at the age of 19 years or less (44.6%) and had their first childbirth before the age of 24 years (74.3%). Only 73.7% of the high risk mothers delivered at the hospital and 73.7% of the mothers intend to practise family planning of whom only 65.1% practised an effective method.

A report on the 1984/1985 Malaysian Population and Family Survey (MPFS) indicated that there is about a two year difference in the mean age at first marriage between Chinese, Malay and Indian mothers. The study also showed a significant difference in marriage patterns according to the educational level of the women. The least educated mothers married at

a younger age and the most educated married later with a difference of some five years (23). This finding is in correlation with the finding of the author. The report also describe that those living in the urban area tend to marry later than their rural counterparts, with a difference of about 1.5 years.

In Japan, the average age at first marriage for females in 1985 was 25.5 Years and the reason behind this was that women wanted to complete their education and have a carrier before marriage (20).

In fact in advanced countries, most women remained unmarried until the age of 20 - 24 years as shown in Table 50 .

Table 51 showed that the 1984/1985 MPFS survey also indicated a marked decline of ever married women especially for the younger age groups compared to various studies carried out since 1947 in Peninsular Malaysia (23). The delay in age at first marriage is due to factors such as improvement of women's education and employment opportunities.

The MPFS showed that the median age at first childbirth has risen progressively for each of the cohort, 17.2 years among members of 1950-1954 cohort to 21.8 years for those in the 1975 -1979 cohort (23). This is of course in line with the expectation given by the later age pattern at first marriage.

Table 50 : Trends in Ratios of Unmarried Women Aged 20 - 24 years in Advanced Countries.

Country	1950	1960	1970	1980
Japan	55.2%	68.3%	71.7%	77.7%
U.S.A.	32.3%	28.4%	36.3%	51.3%
Denmark	51.2%	45.9%	44.7%	72.5%
Sweden	59.7%	57.5%	60.0%	83.3%
U.K.	52.5%	42.0%	41.2%	53.7%
France	49.9%	54.3%	50.6%	51.4%
West Germany	67.6%	54.6%	41.6%	60.1%
Italy	67.5%	65.6%	56.5%	55.7%

NB : Depending on the country, the figures can be for the approximate time rather than the actual year given.

Source : " Demographic Yearbook " United Nation.

Table 51 : Per Cent of Women Ever-married by Age as Reported in Various Census and Surveys Since 1947 Peninsular Malaysia

Age of women	Years					
(years)	1947 (census)	1957 (census)	1970 (census)	1974 (MFFS)	1980 (census)	1984/85 (MPFS)
15 - 19	42	37	16	11	8	6
20 - 24	87	9	57	50	46	46
5 - 29	96	4	86	79	78	78
0 -34	98	8	94	90	90	84
5 - 39	98	9	97	94	95	93
0 - 44	98	9	98	98	97	98
44 - 49	98	99	98	99	98	97

The median age at first childbirth among Chinese mothers is more than 2 years older than the Malay mothers. The result of the 1975-1979 cohort is almost similar to the findings of the author, where the mean age at first childbirth of the study population is 21.9 years with the mean age at first childbirth for Malay, Chinese and Indian mothers at 21.9 years, 25.2 years and 19.4 years respectively.

The MPFS also showed that women living in the urban areas have fewer children than their counterparts living in the rural areas. Similar differences are found among the ethnic groups and these were even sharper among women of different educational level (23).

In her study, the author noted that there was no significance difference between parity and ethnic groups, but there was a significant difference between parity and residence of mother; and parity and educational level of mother. Mothers living in the urban areas have fewer parity than their counterparts living in the rural areas. Mothers with primary education or without any education also tend to have a higher parity compared to those with lower secondary education and above.

During the 1984/1985 MPFS it was noted that 7 % of women started their first antenatal visit during the first 12 weeks of pregnancy. The MPFS also reported that the most educated mothers attended antenatal check up earlier than other groups (23). This was slightly different from the findings of the study by the author , who found that only 2.7% had their first

antenatal check up during the first 12 weeks of gestation. The finding also indicates that mother's awareness regarding the importance of early antenatal check up is not influenced by their educational level.

A study conducted in the metropolis of Delhi from January to December 1988 documented that 67.1% of the pregnant women who delivered in 1988 utilised the antenatal clinic. Only 11.7% women were registered before 12 weeks of gestation and mean gestational age at registration was 24.71 weeks. The mean inter pregnancy interval was 16.51 months. Their average number of antenatal visits was 2.12 per women and only 49% paid more than one visit. Women who were older or registered early in pregnancy paid more antenatal visits (29).

The average number of antenatal visits for the study population was 10.1 times per mother with 40.5% of the mothers making 11 or more visits and and 51.4% of the mothers made between 6 - 10visits. The average number of times mothers were reviewed by the medical officer was 3.6 times.

Mothers in the high risk group should be encouraged to start their first antenatal check up as early as possible so that risk factors and complications could be detected early and managed with care.

The first antenatal visit was the most important contact between a pregnant woman and the medical personnel. Early antenatal care visit will provide educational information, prophylactic and screening procedures to be undertaken. This would permit timely intervention and management.

Relevant examination such as early ultrasound (between 16-18 weeks gestation) if available can be carried out. Another important purpose of the first visit was to assess the presence of risk factors which might affect the pregnancy in order to determine what form of management and treatment will be given on subsequent visits. Depending on the risk factors, the amount of specialist antenatal care necessary might be determined (30).

The Ministry of Health had recommended a minimum of 8 antenatal visits for each pregnant mother. In this study, the average number of antenatal visits were 10.1 times.out of which 51.4% and 40.5% of the high risk pregnant mothers had between 6-10 visits and 11 or more visits respectively.

The major risk factor identified in this study were preeclampsia (23.7%) and anaemia (19.6%), overdue (11.5%) followed by history of previous LSCS (10.1%) and history of postpartum haemorrhage due to retained placenta (6.8%). The study population showed that the incidence of preeclampsia, anaemia and overdue are 3.7%, 3.0% and 1.8% respectively of the total birth.

However, despite the risk factors identified among the high risk pregnant mothers, only 43.2% were home visited by the nursing personnels. This could be due to heavy workload burdened by health personnels. Besides home visitng, the health personnels had to conduct clinic sessions covering activities such as maternal and child health care, family planning, nutrition, health education and basic medical care.

A study on grandmultiparity in Malaysian women at University Hospital, Kuala Lumpur from 1 January 1988 until 31 December 1988, showed that women of parity 7 and above were significantly more likely to be from lower socio-economic groups and suffer from anaemia, hypertension and preeclampsia (31).

A study on trends in selected obstetric complications from University Hospital, Kuala Lumpur showed that the rate of pregnancy induced hypertension in Kuala Lumpur is 5 - 10% of births (32). A comparative survey in four Asian countries using standardised clinical diagnosis estimated that the incidence of hypertensive disorders in pregnancy varied from1% in Vietnam and Thailand , to 5% in Burma and 31% in China (33).

Another study conducted in University Hospital, Kuala Lumpur, Malaysia between January 1987 and February 1990 on the obstetric performance of 240 elderly primigravida and 250 young primigravida showed that the incidence of impaired glucose tolerance, diabetes, preterm delivery, antepartum haemorrhage and malpresentation all increased in the elderly primigravida group. The incidence of caesarean section in the older group was 40.4% compared with 6.8% in the younger group (34).

A study in Tsan Yuk Maternity Hospital, Hong Kong from a 5 year medical record findings (1977 to 1982) on 165 elderly primipara compared to1,443 younger primipara also showed that the incidence of diabetes mellitus, antepartum haemorrhage, mild hypertension in pregnancy and uterine fibromyoma increased in the elderly primipara (35).

Another study in Tsun Yuk Hospital, Hong Kong on 118 maternal deaths from 1945 to 1983 showed that 64 deaths were avoidable. The most common preventive cause was preclampsia - eclampsia involving 29 patients between 1945 and 1965 and 23 died from inappropriately treated haemorrhage (17).

A study in Jamaica from 1981 - 1983 indicated that the most common cause of mortality was hypertensive disease (2.7 per 10,000 livebirth) followed by haemorrhage (2.1 per 10,000 livebirth) (33). Another study also carried out in Jamaica between 1986 - 1987 also reported that the major cause of maternal mortality was hypertension followed by haemorrhage and infection (36).

A study in Addis Ababa, Ethiopia showed that antenatal care, occupation and income as risk factors for maternal mortality. The main causes of maternal mortality were eclampsia and post partum haemorrhage (37).

Another study carried out in Anantapur District, Andhra Pradesh, India from July 1984 - June 1985 noted that the major clinical causes of maternal mortality were sepsis (36%), haemorrhage (12%), eclampsia (9%) and retained placenta (7%) (38).

Study of maternal mortality at N. Wadia maternity Hospital, Bombay, India from 1929 - 1983 showed that the achievement in reducing maternal mortality over the decades were due to multiple factors like better and effective antenatal, intranatal and postnatal care. 11.99% and 88.01% of the

maternal deaths from 1929 - 1983 were booked and unbooked cases respectively, compared to 41.40% and 58.60% during a period of 1980 to 1988. The main cause of admission was due to hypertensive disorder accounting for 26.72% for the period of 1981 - 1983 and 25.1% for 1987 -1988 respectively (39).

Another study which was carried out at Nowrosjee Wadia Maternity Hospital, Bombay from 1929 to 1983 revealed that the direct obatetric death rathad declined from 670 per 100,000 livebirths for the 1929-1939 period to 40 per 100,000 livebirths for the 1980-1983v period. It was emphasised that ideal antenatal, intranatal and postnatal care was reaponsible for this (40).

Improvement of antenatal care coverage in developing countries has significantly reduced maternal mortality and morbidity. It is known that factors such as poverty, low educational level, shortage of health personnels, poor information system, inadequate funds for primary health care, poor referal system , high proportion of high risk preganacy and failure to involve local community are limitations to facilltate good antenatal care (41).

The coverage of postnatal nursing of the high risk pregnant mothers under study was 98.7% and compared to the National coverage of 67.7% at government facilties and this achievement is very encouraging. However the number of postnatal nursing carried out for each mother can be improved.

The study indicated the average postnatal nursing per mother was only 4.7 times which was far below the guideline set by the Ministry of Health , that is 8 postnatal nursings for every mother. In this study, only 11.5% of the mothers had a total of 8 or more postnatal nursings. Factors which could have contributed to this were :-

- heavy workload burdened by the midwife / community nurse
- midwife / community nurse in charge was on leave or attending a refresher course and the relieving health personnel had to cover two operational areas simultaneously
- midwife / community nurse was not aware or not informed by the family when mother was discharged from the hospital after delivery.

In her study, the author found that mothers knowledge on risk factors still need to be improved. 52.7% of the mothers were able to name only 1-4 risk factors and only 5.4% were able to name 15 or more risk factors. The most common risk factors identified by the mothers are preeclampsia/eclampsia (66.9%), anaemia (57.7%), antepartum haemorrhage (46.6%), retained placenta (42.3%) and postpartum haemorrhage (34.5%).

In 1990, 45.4% of the deliveries for Pahang state were domiciliary deliveries, of which 1.7% were conducted by traditional midwive, 3.3% by untrained personnels and 6.5% were born before the arrival of midwives. In Temerloh district, 46.9% of the deliveries in 1990 were home deliveries of which 1.5% were conducted by traditional midwives, 2.6% by untrained personnels and 5.9% were born before the arrival of midwife (42).

One of the most important aspects that must be considered was every high risk mother should have an institutionalised delivery. The study showed that 24.3% of the deliveries took place at home, out of which 11.1% of the deliveries respectively were conducted by traditional midwives or were born before the arrival of midwife.

Although the main reasons given by the mothers for home delivery were easy labour (48.7%) and short labour pain (43.6%), 28.2% of the mothers prefered home delivery because they felt that services given by the hospital staffs were unsatisfactory. This could be due to the fact that the hospital was usually bounded by strict visiting hours and family members were not encouraged to accompany mothers during their hospital stay. At times, the hospital staff were overburdened by heavy workload or overcrowded wards and thus unable to give special attention to each individual. In Mentakab District Hospital, the bed occupancy rate for obstetrical and gynaecological case was about 104%.

Other reasons that had been given by mothers for home deliveries were mothers had no transport to go to the hospital, mothers were scared she might undergo operative delivery procedures at the hospital, unable to pay the hospital bills and not used to the hospital conditions.

To overcome the above factors, health education sessions held at health facilities should also include other topics besides medical conditions. This could overcome misunderstandings and wrong perceptions regarding available services. For instance, mothers could be informed of the

availability of ambulance sevices at all health centres. As shown in this study, only 10.1% of the mothers were utilising the ambulance services. 60.1% of the high risk pregnant mothers claimed that they did not know much about the ambulance services. For mothers who cannot afford to pay the hospital bills, she should be told that she could get free services. Another important factor was that all high risk pregnant mothers should be booked and reviewed at the hospital at least once during her pregnancy to familiarise her with the hospital conditions. In this study, only 71.6% of the high risk pregnant mothers were refered to the hospital.

A study conducted in Kubang Pasu District, Kedah in 1975 showed that 47% of the domiciliary deliveries were conducted by trained midwives, 43% by partly trained midwives and 10% by untrained midwives (43).

According to the study the reasons given for selecting the untrained midwives were :-

- the untrained midwives provided many services such as disposal of the afterbirth, washing of soiled linen, rendering of traditional massage (83%)
- the untrained midwife was usually a relative of the mother (45%)
- acquaintance or familiar with the untrained midwife (14%)
- the untrained midwife lived nearby (24%)
- The trained midwife was not available when their services were required (7%)

The reasons for selecting the partly trained midewives were :-

- the partly trained traditional midwives provided many services (54%)
- the partly trained midwives lived nearby (45%)
- mother was acquainted and familiar with the partly trained midwives (24%)
- The partly trained midwives had some government approval since she had received some form of training (13%)
- fear of hospitalisation or rudeness of trained midwife (9%)
- Trained midwife was not available when her services were needed (7%)

This study also revealed that the reasons for choosing the trained midwives were : -

- Service offered by trained midwives were modern and safe (28%)
- acquaitance with or had been recommended to choose the trained midwife (29%)
- abide by directive to use the governmant facilities and services (18%)
- the services provided were free (6%)
- instructed by the partly trained midwife to select the trained midwife (5%)

The reasons given were almost similar to that found by the author in her study, although the main reasons for choosing the services of traditional birth attendants were not the same.

In her study, the main reason given for choosing traditional birth attendants was mother had no time to call the government midwife (85.7%). However,

familiarity with the traditional birth attendants, provision of other services besides conducting deliveries, mother's house was nearby and choice of TBA by family members still had some influence on choice of personnels attending to the deliveries of high risk pregnant mothers.

Government midwives were chosen by high risk pregnant mothers to conduct their deliveries for three main reasons - they were well trained and used modern methods, free services were provided and advised by TBA to call government midwife.

TBA's training programmes should now be focused on recognising risk factors in pregnancy besides conducting safe deliveries. They should also be introduced to the coding system and importance of institutionalised deliveries among the high risk pregnant mothers.

A study conducted in Gondar, Ethiopia on role of traditional birth attendants in maternal and child health care and extent by which improvement can be effected by the training programme found that antenatal coverage was increased from 12.5% to 61.2% and tetanus immunisation had increased from 29.1% to 65.5%. Proportion of deliveries by trained personnels also rose from 36.5% to 76.4% (44).

An evaluation of domiciliary midwifery in suburban area of Benin City, Nigeria from 1982-1985, revealed that both mothers and the miwifery staffs liked the integration of traditional birth attendants into primary health care (45).

A study conducted in rural West Java showed that semiliterate traditional birth attendants could be trained to monitor risk factors in pregnant mothers if the factors were clearly defined, antenatal cards with a simple layout were used and continuous training and supervision were provided. The study was carried out for a period of 3 months, and records of 37 patients were used by nine participating traditional birth attendants. 52.% of the pregnant women under study were found to have one or more risk with an average of 1.73 risk per women.The principal factors that the traditional birth attendants were trained were to identify factors such as birth interval, gravidity, weight chart and age (46).

The MFFS conducted in 1974 showed that 53% of married women practised family planning. The number of married women practising birth control was lowest among the younger age groups. It increased with age and subsequently declined again among women over age of 40 years. Use of contraceptive, in terms of efficient methods was greatest in urban areas, especially among the educated Chinese. Use of contraceptive was lowest among the rural Malays with lowest education (23).

In 1984/1985 MPFS, it was found that the number of women using contraceptive was 62% and were highest among women who were in their 30's who already have two or more children. As with the 1974 MFFS, the use of contraceptive was highest in the urban areas, among the Chinese and the highest educated. Among the Malays, the proportion using efficient methods was markedly less (20%) . The variance in contraceptive use according

to educational level was relatively small for the Chinese and Indians, except among the highly educated Chinese. The Malays, without any education had the least number practising contraception(10%) and those with 7 - 12 years schooling the highest (26%) (23).

The 1984/1985 MPFS also indicated that the most common method practised for birth control was oral contraceptive (24%), followed by condoms (15%) and the traditional folk methods (18%) (23).

In her study, the author found that 73.7% of the mothers studied intend or had already practised family planning, out of which 65.1% were using effective family planning methods. The most common methods are oral contraceptive (41.3%) and sterilisation (9.2%). 25.4% of the mothers are still practising the traditional folk methods.

Acceptance of traditional folk methods could be due to reasons such as :-

- familiarity with the method and mother believes that traditional methods are good for her health
- contraindication to oral contraceptive and mothers are scared to practise other effective methods
- scared to take the oral contraceptive pill (OCP) or of their side effects
- Unavailability of services such as insertion of intra uterine devices at health centres or mothers are unwilling to practise the method
- Sterilisation are not favoured by some Muslim mothers

A study on use of contraception in South Asean countries indicated that the proportion of married women protected by contraceptives were 71.0% in Singapore (1977), 36% in Malaysia (1974) and 39% in Thailand (1975). The Singapore figure was comparable to the same category of women in Hong Kong with 72% (1976), Japan with 62% (1975) and U.S.A. with 68% (1976). The age distribution of married women using contraceptives in Malaysia and Thailand followed an inverted U-shaped pattern suggesting that it was likely that contraceptive methods were used more for family limitation rather than for birth spacing, however age differentials are not pronounced in Singapore. The oral pill appeared to be the most prefered method in Malaysia and Thailand, while sterilisation appeared to be the most popular choice of contraception among Singapore women. Education and number of living children appeared to be correlated with contraceptive use for Malaysia and Thailand but not for Singapore. Chinese women formed the largest group of users among the three major ethnic communities both in Peninsular Malaysia and Singapore (47).

The 1992 World Population Data sheet reported that 51% of married women in Malaysia were using some form of family planning of which only 30% were using the effective method. This was almost comparable to Indonesia where 50% of married women practised family planning and 47% were using effective methods. Usage of effective family planning methods were much higher in other Asian countries such as Singapore (73%), Thailand (64%), Hong Kong (75%) and Japan (60%) (48).

The world fertility survey has shown that family planning usage in 1980 - 1981 varied from 69% in East Asia to 11% in Africa, and that about 300 million couples who do not want more children were not using any method of family planning. It has been estimated that 5 - 6% of maternal deaths could be averted in Cote d'Ivoire and Nigeria, 28% in Egypt, 42% in Pakistan and 24% in various coutries if all women aged 15 - 49 years not currently practicing birth control and wanting no more children were to use contraception (49).

In Singapore, Maternal mortality rates fell from 40 per 100,000 livebirths in 1965 to 10 per 100,000 livebirths in 1985. There was also a progressive fall in abortion-related deaths from 15 in 1968-1970 to 9 in 1974-1976. There was no abortion related deaths between 1980 and 1985.The factors contributing to this was the family planning policy and the legalisation of abortions. There was a marked increase in the use of contraception among women of parity 0 or 1 from 43% in 1976 to 81% in 1985 (49).

A Sudan based family health project was implemented from 1981-1983 by the University of Khartoum in cooperation with the Ministry of health. One of the focus of the project was on the training and supervision of village midwives on various aspects of health including information about contraceptives for birth spacing, distribution of oral contraceptives, and referals for other methods. One year after the survey the proportion of women aged 30-34 years who had ever used contraceptives increased from 25% to 38%and the proportion currently using rose from 13% to 21% (50).

A report on family planning programmes for the Arab World Region revealed that the average age at which a woman entered marriage varied among countries and according to culture, rural-urban residence, education level and other factors the median age at first marriage was around 18 years. The percentage of married women who were unaware of any method of preventing contraception was 22%. Knowledge of contraception also varied in different countries depending on their educational level, urban or rural residence, age of mothers and availability of the services and supplies. The percentage of married women who had used a method of contraception ranged from 1% in Mauritania to 47% in Jordan and 48% in Tunisia (51).

The present study revealed that many high risk mothers could be saved from the agony of the maternal mortality by upgrading the female education status and intensive health education especially among the rural mothers with the lower household income. Future programmes should be focused on maximum utilisation of available health facilities such as ambulance sevices, hospital deliveries and effective family planning methods. A closer rapport and understanding between the health staffs, hospital staffs, mothers, family members and the community should be encouraged. It is hoped that with good management of high risk pregnant mothers incidence of maternal deaths especially those due to the preventable factors will be reduced in the near future.

RECOMMENDATIONS

In order to further improve and strengthen the management of the high risk mothers, there is a need for a comprehensive plan to ensure effective and efficient management in the implementation of various strategies and activities which are multidisciplinary and multisocial in nature. At the local level, the District Medical Officer of Health with the help of the Health Sisters must play an active role in the implementation of the programmes.

There must be a good rapport, understanding and cooperation between the health and hospital personnels (especially those managing the high risk cases) and the mothers, their family members and the community.

Short and long term strategies must be developed to improve the management of high risk pregnant mothers.

A. HEALTH CARE PROGRAMME

The health care aspects that can be improved by various strategies :-

1) Strengthening in management of high risk mothers.

All health personnels in the various levels should be given more emphasis on early detection, proper management and follow up of all high risk cases. Refresher course on various aspects of maternal health care and family planning should be given out periodically at the district level itself.

More home visits should be made once the risks factors were detected to ensure that the mothers comply to the advice given and to inform other family members of mother's conditions.

2) Establishment of a surveillance / monitoring system for all high risk cases.

The main objectives of this system are :-

i. to provide information that will contribute to the analysis of :
   - causes and assosciated factors
   - management and follow up of high risk mothers
   - pregnancy outcome
   - Utilisation of health facilities and services

   to permit a selection of preventive measures and for future plans

   to upgrade the services.

ii. to provide feedback to the policy maker for future decision making

iii. as a measurement tool for the quality assurance programme

In the development of an effective monitoring system, the Public Health Nurse should be adequately trained and routinely supervised by the District Health Sister, District Medical Officer of Health and the State Maternal and Child Health Officer.

3. Increasing the number of health personnels.

The number of medical and health personnels (doctors and nursing personnels) need to be reviewed to cater for the increasing workload with the introduction of new programmes and interventions. Currently, posting of

medical and health personnels are based on type of facilities. In the future planning, number of medical and health personnels must also be based on the workload of the area served.

The district hospital should also be upgraded to cater the increasing number of hospital deliveries and to improve the existing condition of high bed occupancy rate.

4. Upgrading of existing health services such as availabilty of IUCD insertion services by trained doctors at all health centres.

5. Setting up of flying squad services to ensure ambulance services, medical equipments and competent medical personnels are always available during emergency period.

6. As there are still some remote areas such as the aborigines settlement and areas along the river rhine, a "' midway maternity home ' for high risk pregnant mothers could be considered. High risk pregnant mothers can stay here while awaiting delivery. Health personnels should be assigned to check mothers health conditions daily. This will also solved the problems of overcrowding at the district hospital. However, the home will be best located near the hospital or health centres.

B. HEALTH EDUCATION.

The scope of health education topics also need to be expanded. Besides the medical subjects which are often discussed currently, topics such as availabilty and utilisation of hospital services, preparation and familiarising of mothers for hospital deliveries and effective family planning methods should also be included.

Health Education should also be focused not only on the mother, but also to her husband , other family especially her parents and parent in laws , the traditional birth attendants and the community.

1. Mothers should be well informed about her actual conditions. Ample time should be given for mothers to ask questions about her conditions and not frightened by threats but ensure that they fully understand of the actual situation.

Group discussion and counselling among mothers with similar problems should be encouraged and carried out in a very informal manner but supervised health personnels. Participation of other mothers with previous similar problems can be beneficial. Her previous experience can be narrated to mothers having a similar condition. Mothers at times should be given the right to discuss topics of her choice and participate more actively in health education activities.

2. Husband and family

It is very important to inform the husband and family as at times this group of people can be very influential towards any decision made by the mother. At present participation of husbands in maternal health care are minimal. Husbands should be encouraged to accompany their wives during antenatal visits or even deliveries. Maternal care should be seen as one of the important component of family health by mothers, her husband and other family members.

3. The Traditional Birth Attendants.

In the past, training of traditional birth attendants were more emphasised on the practice of safe delivery. The focus of training the traditional birth attendants should now be focused more on :-

- identification and system of referal for further management of the high risk cases
- introduction to the coding system of high risk mothers
- importance of hospital delivery for high risk mothers

4. Influential people within the community such as religious leaders, village leaders and women leaders can also be utilised to help the health personnels in identification and referal of high risk cases. Community participation can be very useful to upgrade the haelth status of the community.

Health Education activities can be carried out at various levels.

a) At the Health Centre Level

This can be carried out through : - Health talks

- Group discussions
- Pamphlets and posters
- Exhibitions

b) Mass media such as radio and television

c) Community Halls

This should be carried for the entire community but be aimed at few target groups such as the community leader, religious leader, local councellors, teachers, estate managers, women's assosciation etc.

d) At home

This can be achieved through properly planned home visits by health personnels especially the midwives and the community Nurses as they are the " first line" personnels who has close contacts with the family.

The home visit / nursing sessions should be fully utilised to educate both mother and other family members on several subjects such as importance of early and regular antenatal care, risk factors - their complications and management, available support services, etc.

C. FAMILY PLANNING.

Family planning and usage of effective methods should be given a top priority in handling of high risk mothers especially after delivery. Mothers should be well informed of various available methods and the most suitable method for her condition. However, mothers should be allowed to make her own choice and preference on methods to be used.

Updating family planning services and knowledge of health personnels on should be done regularly in collaboration with the National Family Planning and Population Development Board.

D. INTERSECTORAL COLLABORATION.

To gain full achievement in the management of the high risk mothers, intersectoral collaboration with various government and non governmental agencies are very important to ensure a full support while carrying out the planned activities. Some of the agencies and personnels that could be involved are : - Department of the aborigines, ministry of home affairs

- Department of information
- Land scheme developers / managers
- Estate managers
- District Officers
- Community leaders such as the religious leaders, village heads and the traditional borth attendants
- woman's assosciations etc.

This is very important, as in order improve the quality of life, there must be collective responsibilities and full commitment from all levels, both the individual and the community.

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1

DEFINITION

1. Age of mother

Age of mother taken to last complete years as on the day of registration at the antenatal clinic for her most recent pregnancy

2. Anaemia

When the blood haemoglobin level detected during pregnancy is less than 9 gm%

3. Birth interval

Period of the last childbirth to the present delivery (in months)

4. Born before arrival (BBA)

Mothers who delivered their baby before the arrival of the midwife.

5. Delivery

Complete expulsion of the product of conception by any mean, irrespective of duration of pregnancy.

6. Eclampsia

The occurence of one or more convulsions,not attributable to other cerebral conditions such as epilepsy or cerebral haemorrhage, in a patient with eclampsia.

7. Government midwife

A woman who has undergone formal training of midwifery practice and has passed required examination and is employed by the governmanet.

8. Health district

The geographical sub-divisional areas of a state for which is under the responsibility of Health Administration.

9. High risk mothers

Mothers who has one or more risk of the factors as listed in Appendix 1.

10. Housewife

A women who basically does domestic work and does not earn any form of payment for it.

11. Hypertension

The rise in systolic blood pressure of 140 mmHg or more or diastolic pressure of 90 mmHg or more.

12. Income

Total income of husband and wife calculated by month.

13. Level of education

Refers to the level of education that a person attained.

a. No education - has not attended school at all

b. Primary education - has gone through partially or completely standard 1 - 6 of primary school.

c. Lower secondary education - has gone through partially or completely Form 1 - 3 of secondary school

d. Upper secondary education - has gome through partially or completely Form 4 - upper 6 of secondary school

e. Tertiary education - has gone through higher education such as college, polytechnic and university.

14. Livebirth

Expulsion of the product of conception which show any sign of viability such as movement of voluntary muscles, cord pulsation,presence of heart beat or breathing at time pf delivery.

15. Maternal Mortality Rate

Number of maternal deaths per 1,000 livebirth in a particular year.

16. Occupation

Refers to the main job as person holds presently and which occupies most part of his or her working time.

17. Parity

The number of times a woman has delivered a foetus of 28 weeks or more, regardless of whether the foetus was alive or dead at the time of delivery.

18. Poverty line

A monthly household income of $350.00 or less.

19. Preeclampsia

The development of hypertension with proteinuria, oedema or both, due to pregnancy or the influence of a recent pregnancy.

20. Respondents

Those mothers who fulfilled the criteria of high risk mothers and selected as the study population in this survey.

21. Rural areas

Localities or areas with popul;ation of 9999 and below and all ungazetted areas at the time of 1980 census.

22. Safe delivery

When all three stages of delivery conducted by trained personnel.

23. Traditional birth attendant

A person who assists a mother at childbirth and who initially acquired her skills delivering babies by herself or by working with other TBA and practicing traditional methods.

24. Trained personnel

The person who has undergone formal medical and health training course in midwifery practice and has passed a required examination and later either employed by the government or private pratice.

25. Toxaemia (of pregnancy)

Other terminology used for preeclampsia and eclampsia.

26. Urban areas

Localities or areas with population of 10,000 or more and all gazetted areas at the time of 1980 census.

27. Unsafe delivery

These are deliveries conducted by untrained personnel, born before arrival of health staff and not attended at all.

RISK FACTORS IN OBSTETRICS

(Adapted from guideline for management of high risk cases in pregnancy, second edition, Ministry of health, Malaysia)

CODE RED - Immediate Hospital Admission

1. Heart disease in pregnancy with signs and symptoms. (Breathlessness, palpitations)
2. Urine sugar - red or orange
3. If more than 32 weeks and Hb less than 9 gm %
4. Mild pre-eclampsia and more than 36 weeks gestation
5. Severe pre-eclampsia
6. Eclampsia
7. Antepartum haemorrhage
8. Pre-term labour - gestation less than 37 weeks
9. Abnormal presentation during labour
10. Primigravida more tha 12 hours of labour
11. Multigravida more than 8 hours of labour
12. Cervical dilatation remains static for 6 hours
13. Second stage more than one hour
14. Membranes ruptured more than 6 hours and not in labour
15. Leaking liquor more than 6 hours and not in labour
16. Meconium stained liquor

17. Foetal heart less than 120/min or more than 160/min or irregular or weak
18. Post term with a gestation of 42 weeks or more
19. Prolapsed cord
20. Post partum haemorrhage
21. Retained placenta
22. Puerperal pyrexia - more than 38 C
23. Offensive lochia
24. Atonic bladder (urinary retention)

CODE YELLOW - Refer to doctor at Health Centre or Hospital

1. Rhesus negative
2. Haemoglobin less than 9 gm %
3. Mild pre-eclampsia and less than 36 weeks gestation
4. Dyspnoe on exertion
5. Urine sugar - green or yellow
6. Urine albumin - one +
7. Multiple pregnancy
8. Breech / Oblique / Transverse lie with no labour pains
9. Temperature more than 37.5 C
10. Any doubt about the foetal heart
11. Decreased foetal movements
12. Fundal height smaller or larger than dates
13. Head high at term (primigravida)
14. Poor weight gain
15. Post dates (41 weeks of gestation and above)
16. Obesity - 80 kgs. or more
17. Other medical conditions (present pregnancy)
18. Previous surgery
19. Drug addiction

20. Previous obstetric history

i. Consecutive abortions

ii. Stillbirths

iii. Perinatal deaths

iv. Caesarean section

v. 3rd degree tear

vi. Prolonged labour

vii. Instrumental delivery

viii. Post partum haemorrhage

ix. Foetal abnormality

x. Birth weight < 2 kg. or > 4 kg.

xi. Retained placenta

CODE GREEN -Refer cases to Public health Sister or Public health Nurse

1. Maternal age - Primigravida : below 17 years

   35 years and above

   Multigravida : 40 years and above

2. Gravida 6 and above
3. Birth interval - less than 2 years or above 5 years
4. Mothers with special problems
   - Psychiatric
   - Handicapped
   - Single parent]
5. Height less than 145 cm
6. Unsure of dates

CODE WHITE - Cases for Home Delivery

1. Gravida 2 - 5
2. No previous obstetric problems
3. No medical problems like
   - Anaemia
   - Hypertension
   - Diabetes
   - Heart disease
   - Tuberculosis
   - Astma
4. No complications in the present pregnancy
5. Cephalic presentation
6. Suitable home for delivery

ANNEXE 3

BORANG KAJI SELIDIK

Nombor Pendaftaran : _____

Tempat pendaftaran : _____

A. BIODATA UMUM.

	ISTERI	SUAMI
1. Umur (dalam tahun)	_____	_____
2. Taraf Pendidikan	_____	_____
3. Pekerjaan	_____	_____
4. Bangsa	_____	_____
5. Pendapatan tiap bulan	_____	_____
6. Alamat rumah	_____	
	_____	

7. Jarak rumah ke KD/RBK terdekat : _____km.
8. Jarak rumah kePKK/PK/PKB/ Hospital Desa terdekat : _____km.
9. Jarak rumah ke Hospital Daerah terdekat : _____km.
10. Umur ketika pertama kali berkahwin : _____ tahun
11. Umur ketika melahirkan anak pertama : _____ tahun
12. Jumlah anak yang pernah dilahirkan : _____ orang

13. Jumlah Keguguran (sebutkan bila , bulan dan tahun mengalami keguguran) : _____ kali

Tarikh mengalami keguguran i. : _____

ii. : _____

iii. : _____

14. Riwayat kehamilan yang lalu :-

	Tarikh melahirkan	Tempat melahirkan	Disambut oleh	Lahir hidup atau mati	Keadaan anak sekarang (sebutkan tarikh kematian jika sudah meninggal)
i.	_____	_____	_____	_____	_____
ii.	_____	_____	_____	_____	_____
iii.	_____	_____	_____	_____	_____
iv.	_____	_____	_____	_____	_____
v.	_____	_____	_____	_____	_____
vi.	_____	_____	_____	_____	_____
vii.	_____	_____	_____	_____	_____
viii.	_____	_____	_____	_____	_____
ix.	_____	_____	_____	_____	_____
x.	_____	_____	_____	_____	_____

15. Adakah puan pernah mengalami masalah/komplikasi pada kehamilan yang lalu ? ( ) Ya

( ) Tidak

16. Jika ya,sebutkan komplikasi yang puan alami pada kehamilan yang lepas

( ) i. Tumpah darah semasa mengandung

( ) ii. Tumpah darah selepas bersalin

( ) iii. Keguguran berturut-turut lebih daripada 2 kali

( ) iv. Anak mati dalam kandungan

( ) v. Pembedahan caesarean (LSCS)

( ) vi. Sakit bersalin lama (prolonged labour)

( ) vii. Lain-lain (Nyatakan)_____

17. Dengan siapakah puan tinggal ?

( ) i. Bersama suami dengan/tanpa anak

( ) ii. Bersama ibu dan bapa

( ) iii. Bersama ibu dan bapa mertua

( ) iv. Lain-lain (jelaskan) _____

B. RIWAYAT KEHAMILAN YANG BARU LEPAS

1. Usia kandungan sewaktu pemeriksaan kandungan pertama : ___minggu

2. Jumlah pemeriksaan kandungan : _____kali

3. Tempat pemeriksaan kandungan : KD/RBK : _____ kali

PKK/PK/PKB/Hosp.Desa : _____ kali

Hospital Kerajaan : _____ kali

Klinik Swasta : _____ kali

4. Jumlah pemeriksaan oleh doktor : _____ kali

5. Adakah faktor risiko dikesan : ( ) Ya

( ) Tidak

6. Jika dikesan, sila nyatakan : i. _____

ii. _____

iii. _____

7.Bilakah faktor ini dikesan : ( ) i. Semasa mengandung ___ minggu

( ) ii. semasa melahirkan

( ) iii. selepas melahirkan

8. Adakah Puan dimaklumkan dan diberi penjelasan mengenai faktor risiko yang telah dikenalpasti tersebut ? : ( ) Ya

( ) Tidak

9. Siapakah yang memberikan perjelasan tersebut ?

( ) i. JD/BT

( ) ii. Penolong Jururawat

( ) iii. Jururawat Terlatih

( ) iv. Doktor

( ) v. Doktor Pakar

10. Apakah puan memberitahu suami /keluarga puan mengenai hal ini ?

( ) i. Ya

( ) ii. Tidak

11. Adakah Puan dirujuk kepada Doktor ? : ( ) Ya

( ) Tidak

12. Adakah Puan dirujuk kehospital ? ( ) Ya

( ) Tidak

13. Adakah Puan pergi atau tidak kehospital ? ( ) Ya

( ) Tidak

14. Jika ya, siapakah yang menghantar puan kehospital ?

( ) i. Suami

( ) ii. Ibu/bapa atau ibu/bapa mertua

( ) iii. Kakitangan kesihatan

( ) iv. Kawan /Jiran

( ) v. Lain-lain (jelaskan) _____ 15.

Adakah Puan dinasihatkan untuk dimasukkan kewad ? ( ) Ya

( ) Tidak

16. Adakah Puan mengikuti nasihat tersebut ? ( ) Ya

( ) Tidak

17. Jika ya , mengapa anda bersetuju untuk dimasukkan kewad ?

( ) i. Mengikut sahaja apa yang telah dinasihatkan oleh doktor

( ) ii. Untuk keselamatan saya dan bayi yang saya kandung

( ) iii. Lain-lain (Jelaskan) : _____

18. Jika tidak , mengapa anda enggan dimasukkan kehospital ?

( ) i. Saya takut dirawat dihospital

( ) ii. Tidak mempunyai uang untuk membayar bil hospital

( ) iii. Tidak ada orang untuk menjaga anak dirumah

( ) iv. Ingin mendapat persetujuan suami terlebih dahulu

( ) v. Saya berpendapat masalah yang saya alami tidak merbahaya

( ) v. Lain-lain (jelaskan) : _____

Jika anda tidak pergi kehospital atau enggan dimasukkan kewad , sila jawab soalan 19 - 20.

19. Apakah nasihat susulan diberikan oleh kakitangan kesihatan

( ) i. Ya

( ) ii. Tidak

20. Kepada siapakah nasihat itu diberikan

( ) i. saya sendiri

( ) ii. suami

( ) iii. Ibu/bapa atau ibu/bapa mertua

( ) iv. Lain-lain (jelaskan) : _____

21. Apakah lawatan rumah dibuat oleh kakitangan kesihatan

( ) i. Ya

( ) ii. Tidak

22. Berapa kalikah lawatan rumah dibuat setelah faktor risiko dikesan ?

_____ kali

23. Siapakah yang membuat keputusan untuk pergi kehospital atau tidak

( ) i. saya sendiri

( ) ii. suami saya

( ) iii. Ibu/bapa atau ibu/bapa mertua

( ) iv. Lain-lain (jelaskan) _____

24. Dimanakah Puan dinasihatkan oleh Bidan/jururawat/doktor melahirkan anak tersebut ?

( ) i. Hospital

( ) ii. Rumah

( ) iii. Tidak diberi apa-apa nasihat

25. Waktu bilakah keputusan untuk menentukan tempat Puan melahirkan anak tersebut dibuat ?

( ) i. Semasa mengandung 1 - 6 bulan

( ) ii. Semasa mengandung 7 - 8 bulan

( ) iii. Semasa cukup bulan

( ) iv. Semasa sakit untuk melahirkan

( ) v. Lain- lain (jelaskan) : _____

26. Siapakah yang membuat keputusan tersebut ?

( ) i. saya sendiri

( ) ii. suami

( ) iii. Ibu/bapa atau ibu/bapa mertua

( ) iv. Lain-lain (jelaskan) : _____

27. Bilakah Puan bersalin ? : _____

28. Siapakah yang menyambut kelahiran tersebut ?

( ) i. Doktor

( ) ii. Bidan Terlatih/ Jururawat Desa

( ) iii. Bidan Kampung

( ) iv. Bersalin sendiri (BBA)

( ) v. Lain-lain (Jelaskan) _____

29. Bagaimanakah cara Puan bersalin ?

( ) i. Normal (SVD)

( ) ii. Forseps

( ) iii. Vakuum

( ) iv. Pembedahan

30. Siapakah yang menentukan bidan untuk menyambut kelahiran bayi Puan ?

( ) i. Saya sendiri

( ) ii. Suami

( ) iii. Ibu/ ibu mertua

( ) iv. Bapa/ Bapa mertua

( ) v. Kakitangan kesihatan

( ) vi. Lain-lain (jelaskan)

31. Dimanakah Puan melahirkan ?

( ) i. Rumah

( ) ii. Hospital

( ) iii. Dalam kenderaan /perjalanan

32. Sila sebutkan faktor-faktor risiko yang anda ketahui. { Tandakan (✓) sekiranya faktor tersebut dikenalpasti oleh ibu }

( ) i. Mengandung kali keenam dan keatas

( ) ii. Berumur lebih 40 tahun

( ) iii. Jarak kehamilan kurang dari 2 tahun atau lebih 5 tahun

( ) iv. Kurang darah (Anaemia)

( ) v. Darah tinggi semasa mengandung (Preeclampsia/eclampsia)

( ) vi. Mengidap sakit jantung

( ) vii. Mengidap sakit kencing manis

( ) viii. Tumpah darah semasa mengandung

( ) ix. Tumpah darah semasa bersalin

( ) x. Lekat uri

( ) xi. Melahirkan secara pembedahan pada kelahiran yang lepas

( ) xii. Anak kembar / kandungan kembar

( ) xiii. Lebih masa

( ) xiv. Berat badan tidak naik atau berganjak dari asal

( ) xv. Sakit bersalin sebelum cukup bulan (preterm labour)

( ) xvi. Sakit bersalin lebih daripada 16 jam pada kehamilan pertama atau lebih daripada 12 jam pada kehamilan selanjutnya

( )xvii. Mentuban pecah lebih daripada 6 jam

( )xviii.Kedudukan bayi tidak betul semasa sakit bersalin

( ) xix. Anak mati dalam perut pada kehamilan lepas

( ) xx. Lain-lain (jelaskan) : _____

Bagi ibu-ibu yang melahirkan dihospital sila jawab soalan No. 33 - 37

33. Kenapakah Puan melahirkan anak dihospital ?

( ) i. Kerana ianya lebih selamat dan moden

( ) ii. Dinasihatkan oleh kakitangan kesihatan untuk bersalin dihospital

( ) iii. Keluarga (suami / ibu) mahu saya melahirkan dihospital

( ) iv. Kerana hospital berdekatan dengan rumah saya

( ) v. Dihantar kehospital setelah mengalami komplikasi semasa hendak bersalin

( ) vi. Saya telah dimasukkan kewad sementara menunggu kelahiran

( ) vii. Lain-lain (jelaskan) : _____

34. Bagaimanakah anda pergi kehospital ?

( ) i. Dengan kenderaan sendiri

( ) ii. Dengan kenderaan jiran

( ) iii. Dengan kenderaan awam

( ) iv. Dengan ambulans

( ) v. Lain-lain (jelaskan) : _____

35. Siapakah yang menghantar / mengiringi puan ke hospital ?

( ) i. saya pergi sendiri sahaja

( ) ii. suami

( ) iii. Ibu/bapa atau ibu/bapa mertua

( ) iv. Kakitangan kesihatan

( ) v. Lain-lain (jelaskan) : _____

36. Berapa lama kah puan dirawat dihospital selepas bersalin ? : ____ hari

37. Apakah pendapat anda tentang layanan yang diberikan oleh kakitangan kesihatan sepanjang masa anda dirawat disana ?

( ) i. Sangat memuaskan

( ) ii. Memuaskan

( ) iii. Kurang memuaskan

( ) iv. Tidak memuaskan langsung

38. Apakah pendapat anda tentang perkhidmatan ambulans ?

( ) i. Susah untuk mendapatkan perkhidmatan ambulans

( ) ii. Perkhidmatan amat memuaskan

( ) iii. Tidak tahu

( ) iv. Lain-lain (jelaskan) : _____

Jika bersalin dirumah sila jawab soalan No. 39

39. Kenapakah Puan memilih untuk melahirkan dirumah ?

( ) i. Selalu beranak senang

( ) ii. Keluarga saya sentiasa berada disamping saya

( ) iii. Sakit cepat (short labour pain), tidak sempat kehospital

( ) iv. Takut kena bedah sekirnya bersalin dihospital

( ) v. Tidak biasa dengan keadaan hospital

( ) vi. Tidak ada orang untuk menjaga anak dirumah

( ) vii. Keluarga saya tidak membenarkan saya bersalin dihospital

( )viii. Tidak mampu untuk membayar bil hospital

( ) ix. Tidak mempunyai kenderaan untuk pergi kehospital

( ) x. Hospital terletak jauh dari rumah saya

( ) xi. Layanan kakitangan hospital biasanya tidak memuaskan

( ) xii. Biasanya kakitangan kesihatan tidak datang untuk memberi rawatan lepas bersalin sekiranya bersalin dihospital

( ) xiii. Lain-lain (jelaskan) : _____

Jika bersalin dengan bidan kampung / bersalin sendiri sila jawab soalan 40

40. Kenapakah Puan bersalin sendiri / memilih bidan kampung ?

( ) i. Tidak sempat memanggil bidan kerajaan

( ) ii. Bidan kampung memberi khidmat lain saperti mengurut, mencuci uri, jampi dan lain-lain selain daripada menyambut bayi

( ) iii. Bidan kampung tinggal dekat dengan rumah saya

( ) iv. Kenal baik dan sangat rapat dengan bidan kampung

( ) v. Keluarga saya yang memilih bidan tersebut

( ) vi. Takut dihantar kehospital

( ) vii. Bidan kampung telah membantu semua keluarga saya sejak dahulu lagi

( ) viii. Lain-lain (jelaskan) : _____

Jika memilih bidan kerajaan sila jawab soalan No. 41

41. Mengapakah Puan memilih Bidan Kerajaan untuk membantu kelahiran anak Puan tersebut ?

( ) i. Bidan kerajaan telah dilatih, selamat dan mengguna cara moden

( ) ii. Kerana perkhidmatan diberi secara percuma

( ) iii. Kenal baik dan rapat dengan bidan kerajaan tersebut

( ) iv. Bidan kerajaan tinggal dekat dengan rumah saya

( ) v. Keluarga mahu saya bersalin dengan bidan kerajaan

( ) vi. Disuruh oleh bidan kampung untuk memanggil bidan kerajaan

( ) vii. Lain-lain (jelaskan) : _____

42. Apakah daerah Puan mempunyai kenderaan awam ?

( ) i. Ya

( ) ii. Tidak

43. Jika ya, berapa kerap perkhidmatan dapat diperolehi ?

( ) i. Setiap masa

( ) ii. Setiap jam

( ) iii. Tidak tentu masa

( ) iv. Hanya dua kali sehari sahaja iaitu hanya waktu siang hari

( ) v. Lain-lain (jelaskan) _____

Untuk soalan No. 44 - 46, pilih jawapan yang disertakan dibawah ini .

a) Berjalan kaki

b) Dengan basikal

c) Menaiki beca

d) Dengan motosikal

e) Dengan bas

f) Dengan kereta sendiri

g) Dengan kereta sewa

h) Dengan perahu melalui perjalanan sungai

44. Bagaimanakah Puan pergi ke KD / RBK ? : ____

45. Bagaimanakah Puan pergi ke PKK/PK/PKB/KKIK/Hospital Desa ? : ____

46. Bagaimanakah Puan pergi kehospital ? : ____

47. Adakah puan diberikan rawatan lepas bersalin dirumah :

( ) i. Ya

( ) ii. Tidak

48. Berapa kali kah puan diberi rawatan lepas bersalin dirumah : ____ kali

49. Pernahkah Puan dinasihatkan untuk mengamal Perancang Keluarga ?

( ) i. Ya

( ) ii. Tidak

50. Jika ya, siapakah yang memberi nasihat tersebut ?

( ) i. Kakitangan kesihatan

( ) ii. Kawan

( ) iii. Keluarga

( ) iv. Lain-lain (jelaskan) : _____

51. Apakah Puan pernah mengamalkan perancang keluarga ?

( ) i. Ya

( ) ii. Tidak

52. Jika ya, Kaedah apakah yang pernah Puan amalkan ?

( ) i. Kala Azar

( ) ii. Kalendar

( ) iii. Suhu badan

( ) iv. Kondom

( ) v. Pil

( ) vi. Suntikan

( ) vii. Alat dalam rahim

( )viii. Bersenam

( ) ix. Minum akar kayu/jamu

53. Apakah Puan bercadang untuk mengamalkan Perancang keluarga selepas ini ?

( ) i. Ya

( ) ii. Tidak

( ) iii. Belum membuat keputusan lagi

54. Apakah kaedah yang Puan ingin gunakan ?

( ) i. Kala Azar

( ) ii. Kalendar

( ) iii. Suhu badan

( ) iv. Kondom

( ) v. Pil

( ) vi. Suntikan

( ) vii. Alat dalam rahim

( )viii. Pembedahan (Sterilisation)

( ) ix. Bersenam

( ) x. Minum akar kayu / jamu

55. Siapakah memberi anda nasihat untuk mengamalkan cara tersebut ?

( ) i. saya sendiri

( ) ii. Kakitangan kesihatan

( ) iii. Suami.

( ) iv. Ahli keluarga yang lain

( ) v. Kawan

56. Siapakah yang menentukan kaedah yang akan Puan gunakan ?

( ) i. Saya sendiri

( ) ii. Suami

( ) iii. Ahli keluarga yang lain

( ) iv. Kawan

( ) v. Lain-lain (Jelaskan) : _____