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Risk Profile of Pregnant Mothers in Kelantan

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Summary

A demographic and obstetric profile of pregnant mothers attending antenatal clinics in Kelantan over a period of one year was determined by a retrospective study of 10,032 registered pregnant mothers. The prevalence of risk factors related to the age of the mother, parity, weight, haemoglobin level, bad obstetric history and pregnancy related diseases were determined. Prevalence of teenage pregnancy and primigravida accounted for 4.3 and 17.2 per cent respectively. Nearly 3.9 per cent of the mothers weighed less than 40 kg and 44.5 per cent of mothers were found to be anaemic (Hb less than 11g/dl) at the first antenatal visit. Only 3.2 per cent of the mothers did not have any designated risk factor. Previous bad obstetric history and pregnancy related diseases accounted for 17.1 and 3.5 per cent of mothers respectively.

Key Words: Pregnancy risk factors

Introduction

It is estimated worldwide that close to half a million mothers die from pregnancy and childbirth every year[1,2]. It is also well recognised that survival of the newborn depends to a large extent on maternal health. Several factors operating during pregnancy result in high morbidity and mortality in mothers as well as in infants[3]. There is also general agreement that these problems are largely avoidable. Risk approach in maternal and child health care is one of the most simple, cost effective strategy to reduce the incidence of low birth weight babies, perinatal mortality and maternal mortality[4].

The philosophy underlying risk approach is based on the assumption that:

1. high risk groups occurs in small segments of the population
2. it is possible to identify the high risk group on profile of various factors
3. provision of appropriate health care to the identified high risk group.

Risk approach in essence is to provide better services for all, but with special attention to those who need them most. Analysis of risk factors from time to time is necessary for such an approach. Rapid community based cross sectional survey can provide this information in a relatively short time[5].

Kelantan is one of the most socio-economically underdeveloped states in Malaysia[6]. Maternal and child health services (MCH) are provided through a network of health centres, which are under the Ministry of Health, Malaysia. These health centres provide the entire range of MCH care. Complicated and high risk cases are referred to hospitals for management and all risk mothers are advised to deliver in hospital.

While a number of studies have been conducted in Malaysia on the risk profile of pregnant mothers, only a few such studies have been conducted in Kelantan[7,8,9]. This present study was conducted to highlight the risk profile of expectant mothers in Kelantan.

Methodology

The study population consisted of mothers who had delivered and had attended antenatal clinics in health centres throughout Kelantan. They were chosen by proportionate stratified random sampling, where each district represents a strata. All health centres in the strata were selected while the smaller rural clinics were randomly selected so as to obtain a proportionate number of cases to meet the sample size requirements. The mothers were then chosen randomly from the antenatal register. A total of 10,032 mothers were sampled out of a total of 42,504 mothers delivering in Kelantan during the study period of one year from August 1992 to July 1993. The antenatal, birth and postnatal records were reviewed and the data was compiled, tabulated and analysed. Certain common yet important risk factors like age of mother, parity, previous bad obstetric history, anaemia, maternal weight and pregnancy related disease were studied[10]. The criteria for these risk factors are given in Table I. The definition of anaemia in pregnancy was based on the World Health Organisation criteria of 11g/dl[11]. Analysis using Chi-square test was done to note the relationship between parity and the level of haemoglobin. As this was a retrospective study, prepregnancy weight or weight gain during pregnancy could not be measured. The last maternal weight recorded in the antenatal card was taken as a measure of maternal weight gain in this study.

Results

A total of 10,032 pregnant mothers were selected during the study period. They comprise of 98.3 per cent Malays, 1.2 per cent Chinese, 0.3 per cent Siamese, 0.1 per cent Indian and 0.1 per cent of other races. This is similar to the racial breakdown of the population in Kelantan where 93.5% of the population are Malays.

Teenage mothers accounted for 4.3 per cent of the total. Primigravida mothers accounted for 17.2 per cent whereas gravida 6 and above were 30.4 per cent (Table II). Twenty-one mothers were elderly primigravidas. Thus 47.6% of the pregnancies would be classified as

Table I
Criteria for common risk factors in pregnancy

Risk factors	Criteria
1. Maternal age (years)	less than 20 or more than 35 years
2. Parity	primigravida or grand multigravida (>5)
3. Maternal weight	< 40 kg
4. Maternal haemoglobin	< 11.0 g/dl
5. Bad obstetric history	Abortion, Caesarean, Postpartum haemorrhage, Perinatal and neonatal death
6. Pregnancy related disease	Pregnancy induced hypertension or antepartum haemorrhage

Table II
Distribution of mothers according to their age and gravidae

Age group	Gravidae						Total	(%)
(years)	1	2	3	4	5	6		
15 - 19	337	75	10	3	0	0	425	(4.3)
20 - 24	897	664	406	150	46	16	2179	(21.7)
25 - 29	397	606	591	552	345	280	2771	(27.6)
30 - 34	75	172	321	408	412	973	2361	(23.5)
35 +	21	32	58	156	252	1777	2296	(22.9)
Total	1727	1549	1386	1269	1055	3046	10032	(100.0)
% of total	17.2	15.4	13.8	12.6	10.5	30.4	100.0	-

Table III
Mean gestation period (weeks) at time of first visit

Gravida	First ANC Visit				
	< 10	11-20	21-30	> 30	Total
1	27	1139	489	72	1727
2	15	742	731	61	1549
3	9	669	660	48	1386
4	12	589	625	43	1269
5	6	494	513	42	1055
6 +	24	1375	1546	101	3046
Total	93	5008	4564	367	10032

high risk based on parity alone, either primigravida or grandmultipara.

Only half of pregnant mothers were found to be registered for antenatal care by 20 weeks of pregnancy (Table III). Antenatal care should be as early as possible as late booking is associated with adverse outcome of pregnancy[12,13].

Maternal weight gain is an important indicator for foetal outcome. However, prepregnancy weight is not available for a retrospective study to note the weight increase. Other studies have noted that a maternal weight of less than 36-43 kilogram is a risk factor for adverse foetal outcome[14,15,16]. In this study, 40 kilogram is used as a cut off point for inadequate weight. Nearly 3.9 per cent of the mothers were found to be underweight, especially in the age groups of less than 20 and between 20-24 years (Table IV).

Nearly 44.5 per cent of the mothers were found to be anaemic (Hb < 11g/dl), of which the grandmultipara (> 5 pregnancies) account for the greater proportion. (Table V). The severity of anaemia

Table IV
Distribution of mothers according to their age and weight recorded at last antenatal visit

Age group (in years)	Maternal weight		Total
	< 40 kg (%)	> 40 kg (%)	
15 - 19	22 (5.2)	403 (94.8)	425
20 - 24	119 (5.4)	2060 (94.6)	2179
25 - 29	102 (3.7)	2669 (96.3)	2771
30 - 34	78 (3.4)	2283 (96.6)	2361
35+	74 (3.2)	2222 (96.8)	2296
Total	395 (3.9)	9637 (96.1)	10032

Table V
Distribution of mothers according to their haemoglobin level and gravidae

Gravidae	Hb level			Total
	< 8 g%	8-11g%	> 11 g%	
1	3	764	960	1727
2	4	707	838	1549
3	4	640	742	1386
4	5	591	673	1269
5	4	469	582	1055
6 +	15	1263	1768	3046
Total	35	4434	5563	10032

X2 = 89.49 df = 5 p < 0.01

was significant with increasing parity ($p<0.01$). A reason may be that these mothers experienced pregnancies in quick succession often with birth interval less than 2 years and have become vulnerable to anaemia.

Risk factors in pregnancy have been determined by the Ministry of Health, Malaysia. There are four categories of risk, with a colour code for each. Low risk pregnancies are given white coding while green, yellow and red coding are given for increasing level of risk according to the predetermined criteria set. In the present study, only 3.2 per cent of the mothers were coded white, indicating that these mothers did not have any risk factors (Table VI). However, 3.2% of the mothers did not have any colour tagging at all. Previous bad obstetric history and pregnancy related diseases was observed in 17.1 and 3.5 per cent of mothers respectively (Table VII).

Discussion

Risk approach is an accepted method in health care, especially in the field of MCH. This study has briefly

Table VI
Distribution of mothers according to their age and colour coding of antenatal card

Age group	Colour code					Total
(years)	None	White	Green	Yellow	Red	No.
15 - 19	11	19	295	89	11	425
20 - 24	88	346	1165	496	84	2179
25 - 29	118	619	1135	795	104	2771
30 - 34	66	322	1072	796	105	2361
35+	35	87	1108	919	147	2296
Total	318	1393	4775	3095	451	10032

Table VII
Other risk factors noted among pregnant mothers

Risk factor	No	%
1. Previous bad obstetric history		
Abortion	1359	13.6
Caesarean	212	2.1
Post partum haemorrhage (PPH)	98	1.0
Peri & Neonatal Death	36	0.4
2. Pregnancy related diseases		
Pregnancy induced hypertension (PIH)	311	3.1
Antepartum haemorrhage (APH)	35	0.4

described the profile of common risk factors of pregnancy in Kelantan.

Teenage pregnancy account for 4.3% of this series. The risk of complications during pregnancy and childbirth is much greater for teenage girls because their bodies are not fully developed. Teenage pregnancy in other developing countries like Burma, India, Indonesia and Thailand are 11.5%, 15.2%, 19.0% and 11.4% respectively[17]. Elderly primigravida accounts for 0.21%. Primigravida accounts for 17.2% while grandmultipara account for 30.4%. Mothers who are underweight is only 3.9%. Anaemia is widely prevalent among the pregnant mothers in Kelantan. It is most prevalent among the grandmultipara (28.6%). This is presumed to be due to frequent pregnancies. The control of anaemia at the community level can be effective in greatly reducing maternal morbidity and mortality[18].

The above risk factors have a bearing on the risk of adverse outcomes which the pregnancy faces. Out of a total of 10,032 pregnancies, only 1,393 (14.3%) pregnancies were tagged white which indicate low risk and 318 (3.2%) were found untagged, which probably points to a breakdown in the risk approach system[9]. Thus, 85% of the pregnancies were classified as high risk. Based on parity alone, 46.7% will be classified as high risk – primigravida or grandmultipara. All these mothers will be advised to have hospital delivery. A drawback of this system is that the categorization of a high number of risk cases in the country by health personnel have increased the workload of the hospital,

and at times, risk cases may not receive appropriate management due to these constraints[19].

In order to lessen this problem, it is recommended that a score for each risk factor be identified. It has been shown that it is important to estimate region specific or population specific baseline values[20,21]. To improve the risk approach further, it is imperative that the effect of each individual risk factor on pregnancy outcome be studied.

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