

A Study on the Status of Maternal and Child Health and Associated Risk Factors in the Municipalities of Alfonso, Maragondon, and Ternate in Cavite

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Abstract

This study was conducted in order to show that different communities have different predominating risk factors of pregnancy. These differences are important in formulating relevant public health policies and programs. In the three municipalities covered by the survey, the dominant risk factors found were unwanted pregnancy and prolonged fever (three municipalities), history of heart disease and severe vomiting in two municipalities, smoking, alcohol drinking and history of hypertension, in one municipality and jobless husband in another municipality. On the other hand, the practice of gentle massaging of the lower abdomen by a *hilot* was shown to be associated with lower incidence of dead pregnancy outcome.

Other information related to Maternal and child health were presented including social, economic and environmental conditions and family planning utilization. A community obstetric score is proposed which is similar to a woman's obstetric score.

Rationale

From the information gathered by the Health Intelligence Service of the Department of Health,¹ there are a total of 1,379 maternal deaths, 11,884 fetal deaths and 56,897 infant deaths for the year 1984 that occurred in the Philippines. In other words, one pregnant mother dies every six hours, one fetus dies every 44 minutes and one infant dies every nine minutes. These shocking realities point to the urgent need of developing intervention programs in Maternal and Child Health (MCH) that can effectively reduce the incidence of the above outcomes.

The World Health Organization (WHO), realizing the resource con-

straints especially in underdeveloped and developing countries, has recommended the high risk approach² especially in the field of MCH. Its aim is to maximize the utilization of resources in order to increase the benefits and coverage of programs and services to those who need them most.

High-risk factors in MCH are well-known and numerous. It is because of their number that before any intervention program (whether for service or for research) is implemented in a given area, the prevalences of the different high-risk factors must first be determined and ranked from the most significant to the least significant. This ranking can serve as one of the basis for determining the thrust of programs and researches in their search for better alternatives. Furthermore, this information can be utilized as one of the bases for developing criteria for future evaluations of programs.

The University of the Philippines-College of Public Health, in cooperation with the Cavite Integrated Provincial Health Office, has committed itself to the development of primary health care programs through service and research activities to seven municipalities of the province; namely, Aguinaldo, Alfonso, Magallanes, Maragondon, Mendez, Naic, and Tarnate. It is in line with this commitment that this research study is undertaken. It is hoped that this study will be the start of a series of operational research activities that are concerned with MCH.

General Objectives:

Establishment of Baseline Information Relevant to MCH.

Specific Objectives:

1. To determine the status of MCH in the identified municipalities for the years 1980-1987.
 - 1.1. To describe the outcome of past pregnancies of women
 - a. Status of Product of Conception at Termination of Pregnancy - i.e. abortion, stillbirths and live-births.
 - b. Age of Gestation at the Time of Delivery - premature and term.
 - c. Manner of Delivery - vaginal delivery and abdominal delivery.
 - d. Fetal abnormality - congenital abnormalities, multiple pregnancy and low birth weights.
 - 1.2. To determine the mortalities during the neonatal period and infancy.

2. To identify which of the previously known risk factors have the most impact on dead outcome of pregnancy.

The risk factors to be examined are:

A. Family Formation Variables

1. Maternal Age (> 35 years old)
2. Parity (> 5 fetal deliveries)
3. Legally married/ not legally married

B. Socio-Economic Status

1. Inadequate family income - below poverty level
2. Educational attainment - up to elementary education - refers to wife
3. Housing - location: isolated dwelling units
size: floor area < 30 sqm.
facilities: no toilets, no safe water supply

C. Emotional Status.

1. Unwanted pregnancy
2. Smoking and alcoholism

D. Presence of Medical Diseases.

1. Hypertension
2. Heart Disease
3. Tuberculosis
4. Other Diseases

E. Previous Abnormal Pregnancy Outcomes.

F. Conditions Developing and Interventions During Pregnancy

1. Infection - high grade fever of more than one week duration
2. Severe Hyperemesis
3. Exposure to potential Teratogens e.g., drugs
4. Bleeding before, during and after delivery associated with pallor and weakness.
5. Generalized edema with or without hypertension.
6. Uterine massage
7. Delivery by untrained birth attendant.

Statement of the Problem

- *the need for better information base in MCH*

High risk approach is heavily based on the science of epidemiology. It requires information not only on outcomes of diseases and other health conditions, but also, it requires information that can relate these outcomes to known or suspected factors. In this way, different types of risk can be quantified in terms of their magnitude in the community. This method of analysis can ultimately help health planners in deciding priorities for resource allocation, thrust of activities, etc.

Currently, maternal records and child records in the different Rural Health Units (RHU's) of the province are inadequate. There is non-uniformity of data gathered. Reliability of certain information is questionable because of lack of systematized recording, giving rise to conflicting reports. This current status of information system makes it necessary to seek alternative information sources like a survey which this research has undertaken.

- *the need to identify specifically the more dominant high-risk factors for mothers and children, existing in the municipalities.*

As mentioned earlier, there are already known risk factors for mothers and children. A scoring system that can detect high risk individual mother is being used in many institutions. However, such instruments are more valid in detecting high risk individuals than in detecting populations with higher risks and in identifying which among the numerous risk factors exist more prominently than others.

Usefulness of the Research

Besides establishing baseline information relevant to MCH and identifying local risk factors, the results of the research will be used as a guide in formulating future researches. Likewise, because of the existing linkage between the Cavite Provincial Health Office and the U.P. College of Public Health, the results may be utilized in the development of the MCH program plan for the province.

Methodologies

This research is a retrospective cohort study of pregnancies and livebirths occurring between 1980-1987. The target population are women living in Maragondon, Ternate and Alfonso, aged 15 to 49 years old who have a history of pregnancy.

The study is a cluster survey of all barangays (villages) of the three municipalities. Before interviews are conducted in each barangay, a masterlist of women living in the community is prepared. The names are taken from the census of families previously made by U.P. College of Public Health. The prepared list serves as a control instrument to ensure maximum coverage of the target population.

A questionnaire is administered to the women respondents. It is divided into the following sections:

1. General Data
2. Past History
3. Family History
4. Personal and Social History
5. Obstetric History

Data gathered are converted into computer data format by means of a software database program developed by the investigator using Turbo Pascal programming language. Records of each pregnancy for each respondent are then sorted according to the year of delivery. Querying and cross tabulations are then done between the outcomes of pregnancies for the years 1980 to 1987 and the risk factors under study. Chi-square tests are done in order to determine the significance of the relative risk values computed. These relative risk values are then used as the basis to determine which among the risk factors identified are more dominant in influencing abnormal outcomes of pregnancies in each municipality.

Limitation of the Study

The method of computing the relative risk values and their statistical significance is only a crude estimator since the confounding variables are not controlled.

Results and Discussions

Maragondon is composed of 19 barangays. Majority of its population is situated in the lowlands while the rest live in the upland areas. One of its barangays (Patungan) is isolated at the foot of Mt. Dos Picos and accessible only by sea. Ternate is a coastal municipality with seven barangays. It has a first class tourist resort hotel popularly known as Puerto Azul. Alfonso is an upland municipality with 24 barangays. A significant part of its arable land is planted with coffee.

General Profile of Respondents

Table 1 shows the number of respondents interviewed in each barangay for the three municipalities. A total of 2,442, 1,081 and 2,407 women were covered in Maragondon, Ternate and Alfonso respectively.

Table 2 and Figure 1 show the number and percentage distribution of the respondents according to their age computed for the year 1989. The median ages are 32.55 years old, 30.95 years old and 33.24 years old for those living in Maragondon, Ternate and Alfonso respectively. Based on the 1989 population estimates (20,952, 10,931 and 28,334 persons)^{3,4} ⁵ for the three municipalities and the assumption that the total number of women interviewed comprises all of the women within the female fertile period with a history of at least one pregnancy, then 11.65%, 9.80% and 8.50% can be considered as the population estimators of women within the female fertile period for Maragondon, Ternate and Alfonso respectively.

Municipality	Barangay	No. of Respondents
M A R A G O N D O N	Bucal 1	230
	Bucal 2	103
	Bucal 3	134
	Bucal 4	169
	Caingen	239
	Garita	138
	Layong Mabilog	81
	Mabacao	257
	Mabato	64
	Pantihan 1 (Balayungan)	69
	Pantihan 2	41
	Pantihan 3 (Pook na Munti)	84
	Pantihan 4 (Pulo ni Sara)	81
	Patungan	141
	Pinagsanhan	178
	Poblacion 1	141
	Poblacion 2	89
	San Miguel	119
	Talipusngo	84

Table 1 : Number of respondents by barangay and municipalities.

Municipality	Barangay	No. of Respondents
T E R N A T E	Bucana	15
	Poblacion 1	161
	Poblacion 2	114
	Poblacion 3	147
	San Jose	129
	San Juan	240
	Sapang	265
	Amuyong	100
	Buck Estate	150
	Esperanza	136
	Kaysuyo	94
	Kaytitingga	237
	Lukuhin Ibaba	178
	Lukuhin Ilaya	92
	Manggas	141
	Marahan	146
	Matagbak	104
	Pajo	109
	Palumlum	47
	Poblacion 1	18
	Poblacion 2	20
	Poblacion 3	53
	Poblacion 4	60
	Poblacion 5	1
	Sicat	101
	Sinaliw Malaki	26
	Sinaliw Munti	91
	Sulsugin	84
	Taywanak Ibaba	114
	Taywanak Ilaya	69
	Upli	96

Table 1(cont.) : Number of respondents by barangay and municipalities.

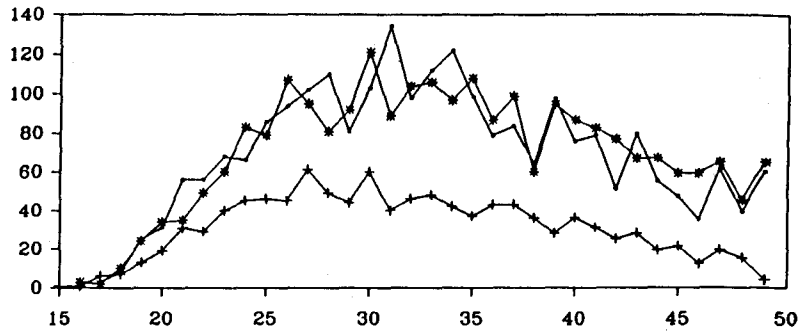
Age	MARAGONDON		TERNATE		ALFONSO	
	No.	%	No.	%	No.	%
15	1	0.09				
16	1	0.09	3	0.13		
17	3	0.13	6	0.56	2	0.08
18	8	0.34	7	0.65	10	0.42
19	25	1.06	13	1.21	24	1.00
20	31	1.31	19	1.78	34	1.42
21	56	2.37	31	2.90	35	1.46
22	56	2.37	29	2.71	49	2.05
23	68	2.88	40	3.74	60	2.51
24	66	2.79	45	4.21	83	3.47
25	86	3.64	46	4.30	79	3.30
26	94	3.98	45	4.21	107	4.47
27	102	4.32	61	5.70	95	3.97
28	110	4.66	49	4.58	81	3.38
29	81	3.43	44	4.11	92	3.84
30	103	4.36	60	5.61	121	5.05
31	134	5.67	40	3.74	89	3.72
32	98	4.15	46	4.30	104	4.34
33	112	4.15	48	4.49	106	4.43
34	22	5.17	42	3.93	97	4.05
35	99	4.19	37	3.46	108	4.51
36	79	3.34	43	4.02	87	3.63
37	84	3.56	43	4.02	99	4.14
38	64	2.71	36	3.36	60	2.51
39	98	4.15	28	2.62	95	3.97
40	76	3.22	36	3.36	87	3.63
41	79	3.34	31	2.90	83	3.47
42	51	2.16	25	2.34	77	3.22
43	80	3.39	28	2.62	67	2.80
44	55	2.33	19	1.78	67	2.80
45	47	1.99	21	1.96	59	2.46
46	35	1.48	12	1.12	59	2.46
47	61	2.58	19	1.78	65	2.72
48	39	1.65	15	1.40	45	1.88
49	60	2.54	4	0.37	65	2.72

Table 2 : Number and percentage distribution of women respondents by age.

(Note: Excluded from the table are respondents who did not give their year of birth)

**Age Distribution of Respondents
by Municipality**

Number



Age (Years)

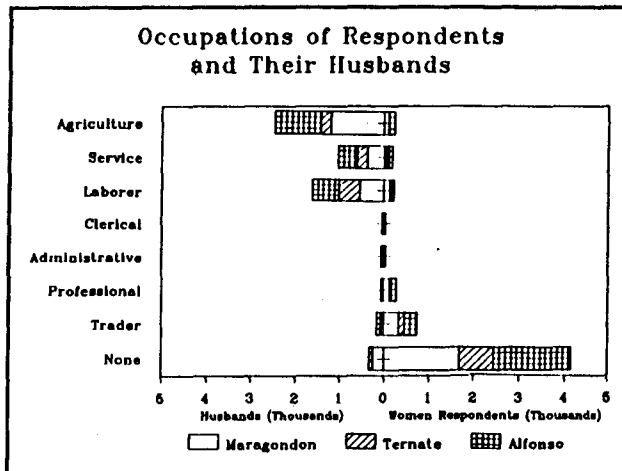
Municipalities

--- Maragondon -|- Ternate --- Alfonso

Figure 1

Figure 2

Table 3 shows the civil status of the women interviewed. Please take note of what may be considered as a high proportion of women who live with their husbands as common-law wives especially for Maragondon and Ternate. Is this phenomenon reflective of the low level of education of the women in these areas?



CIVIL STATUS	MARAGONDON		TERNATE		ALFONSO	
	No.	%	No.	%	No.	%
1. Single	8	0.33	9	0.84	6	0.25
2. Legally Married	1982	80.67	916	85.53	2187	90.86
3. Common-Law	3	14.37	113	10.55	131	5.44
4. Widow or Separated	14	4.64	3	3.08	83	3.45

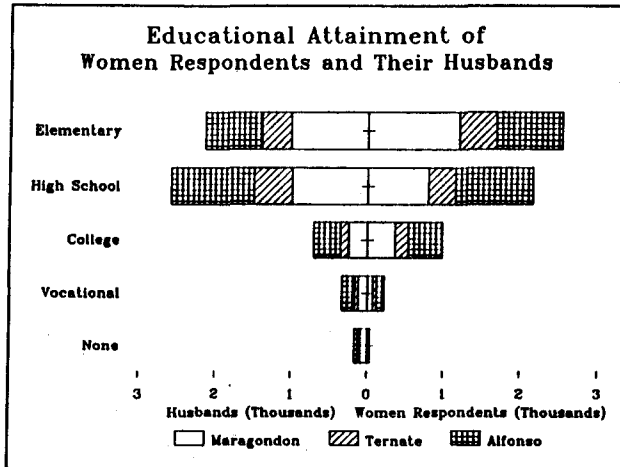
Table 3 : Civil status of respondents for the three municipalities

Majority of the women interviewed in the three municipalities are housewives. For those who work, trading is the first choice for all of them. Majority in this business have a variety store in their house. This type of occupation enables them to earn while at the same time tend to the household needs. As for their husbands, most are in agriculture or in jobs that require manual activities. These occupations may not necessarily be their preference but rather a consequence of their limited educational experience.

OCCUPATION	MARAGONDON		TERNATE		ALFONSO	
	No.	%	No.	%	No.	%
I. WIVES						
1. Agriculture	105	4.27	12	1.12	131	5.44
2. Service	45	1.83	52	4.86	90	3.74
3. Laborer	134	5.45	55	5.14	45	1.87
4. Clerical	16	0.65	12	1.12	11	0.46
5. Administrative	12	0.49	3	0.28	21	0.87
6. Professional	131	5.33	42	3.92	111	4.61
7. Trader	332	13.51	133	12.42	285	11.84
8. Housewife	1682	68.46	762	75.15	1713	71.17
II. HUSBAND						
1. Agriculture	1190	48.43	232	21.66	1031	45.72
2. Service	374	15.22	227	21.19	437	17.79
3. Laborer	535	21.77	468	43.69	609	24.79
4. Clerical	14	0.57	9	0.84	23	0.94
5. Administrative	21	0.85	12	1.12	38	1.55
6. Professional	27	1.10	12	1.12	24	0.98
7. Trader	53	2.16	25	2.33	88	3.58
8. None	243	9.89	86	8.02	5	0.20

Table 4 : Occupations of women respondents and their husbands.

Figure 3



	MARAGONDON		TERNATE		ALFONSO	
	No.	%	No.	%	No.	%
I. WIVES						
1. Elementary	1196	48.68	490	45.75	848	35.23
2. Secondary	800	32.56	357	33.33	1003	41.67
3. College	368	14.98	172	16.06	448	18.61
4. Vocational	71	2.89	47	4.39	100	4.15
5. None	22	0.90	5	0.47	8	0.33
II. HUSBAND						
1. Elementary	1008	41.03	382	35.67	747	31.03
2. Secondary	994	40.46	501	46.78	1086	45.12
3. College	245	9.97	110	10.29	352	14.62
4. Vocational	121	4.92	48	4.48	170	7.06
5. None	89	3.62	30	2.80	52	2.16

Table 5: Educational attainment of women respondents and their husbands.

Table 5 and Figure 3 shows the educational attainment of the women and their husbands. It should be noted that more women reached the collegiate level, yet majority of them ended as housewives. On the other hand, there are more men who did not have any form of education compared

to their wives. Is this because boys are made to help their fathers in the farms? Or do women want to study more than men? Whatever the answers are, the impact on ill health is expected to be greatest if both husband and wife did not have any form of education.

MONTHLY FAMILY INCOME	MARAGONDON		TERNATE		ALFONSO	
	No.	%	No.	%	No.	%
1. <500.00	1185	48.23	172	16.07	664	27.59
2. 500. - 1,000.00	591	24.05	273	25.51	631	26.22
3. 1,000. - 2,000.00	395	16.08	307	28.69	674	28.00
4. 2,000. - 3,000.00	115	4.68	126	11.78	144	5.98
5. >3,000.00	171	6.96	192	17.94	294	12.21

Table 6 : Amount and type of family income of respondents

	MARAGONDON		TERNATE		ALFONSO	
	No.	%	No.	%	No.	%
I. House Location						
1. Isolated	160	6.51	71	6.63	240	9.97
2. Sparse	373	15.18	250	23.34	783	32.53
3. Adequate	1924	78.31	750	70.03	1384	57.50
II. Floor Area						
1. Below 30 sq.m	734	29.87	293	27.38	405	16.83
2. 30 - 50 sq. m	1215	49.45	514	48.04	1124	46.70
3. >50 sq. m	508	20.69	263	24.58	878	36.48
III. Toilet						
1. Present	1064	44.12	523	49.76	1608	66.83
2. Absent	1373	55.88	528	50.24	798	33.17
IV. Drinking Water						
1. Artesian or Pipe	634	25.80	259	24.18	1218	50.60
2. Others	1823	75.20	812	75.82	1189	49.40

Table 7 : Selected socio-environmental conditions of respondents

During the survey period of this research, the National Economic and Development Authority (NEDA) stated that families earning less than 3,000 a month live in poverty. Using this as criteria, more than 80% of respondents' families live in poverty with Maragondon having the highest level (Table 6). More important, 48% of families in Maragondon have a monthly income of less than 500. If these economic realities are seen together with the socio-environmental conditions (Table 7, Figure 4 and 5) of the respondents, one can expect different levels of health compromise in the three municipalities. How the different conditions inter-relate with one another to produce an impact on health is beyond the scope of this study.

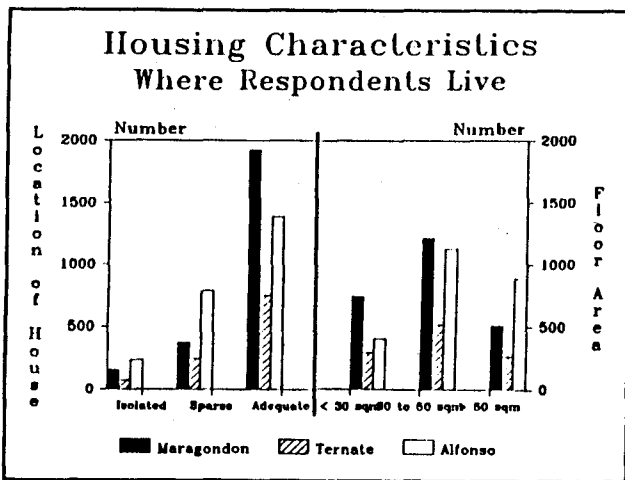


Figure 4

Table 8 shows the prevalences of some selected social behavior of the women respondents. Drinking alcoholic beverages has the lowest prevalence in all three municipalities. Smoking can be considered of significant proportion especially in Maragondon and Alfonso.

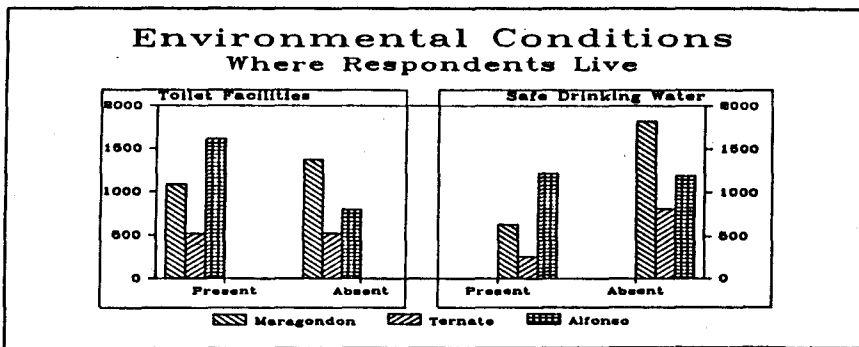


Figure 5

Other behaviors inquired about are gambling and adherence to superstitious beliefs. Note that the prevalences of these behaviors are high. These give an idea of negative factors that may influence their health assistance-seeking behavior.

The women respondents were asked of their knowledge on diseases and operations that they had. Table 9 shows their answers. The prevalence rates among the women respondents were computed. It is admitted that these rates could be an underestimate of its real values; however, they could also be useful benchmarks which planners in maternal and child health can use. For one, the diseases listed are known to increase the risks of pregnancies if undetected. The operations listed are medium and major operations including caesarean sections, appendectomy, thyroidectomy, hysterectomy, etc. Minor operations such as excision of cyst are excluded.

Diseases of the immediate family members such as parents, brothers and sisters were asked (Table 10). Attention was focused on diseases with familial tendencies or those that may affect the women respondents. Note that the more prevalent diseases are common in both the women respondents and their immediate relatives. These are hypertension, heart disease,

		MARAGONDON		TERNATE		ALFONSO	
		No.	%	No.	%	No.	%
Smokes	YES	374	15.22	96	8.96	388	16.12
Cigars/Cigarettes	NO	2083	84.78	975	91.04	2019	83.88
Drinks	YES	51	2.08	18	1.68	26	1.08
Alcoholic Beverages	NO	2406	97.92	1053	98.32	2381	98.92
Gambles	YES	807	32.84	539	50.33	1039	43.17
	NO	1650	67.16	532	49.67	1368	56.83
Believes Evil Spirit	YES	1782	72.53	816	76.19	569	23.64
	NO	675	27.47	255	23.81	1838	76.36
Claims Possession of Evil Spirits to a Family Member	YES	630	25.64	368	34.36	786	32.65
	NO	1827	74.36	703	65.64	1621	67.35

Table 8 : Selected social behavior of the women respondents.

goiter, tuberculosis, anemia, urinary tract disease, malignant diseases, and malaria. Some of the diseases mentioned are easily preventable and curable. Others can be controlled. In both instances, something can be done to give pregnant mothers a better chance for safe motherhood.

A profile of the total number of pregnancies is shown in Table 11 and Figure 6. This frequency distribution shows that the median total number of pregnancies are 3.28, 3.04 and 2.95 for women of Maragondon, Ternate and Alfonso. Subjecting this distribution to the test of homogeneity using chi-square test shows a χ^2 value of 50.645 at 22 degrees of freedom (d.f.) with a p -value of 0.000479. This significance is the result of the differences in the distributions between Maragondon and Alfonso. A chi-square test was done for the two municipalities. It showed the χ^2 to have a p -value 3.14×10^{-5} .

The frequency distribution of the total number of term deliveries for each woman respondent is shown in Table 12 and Figure 7. The median number of term deliveries are 2.87, 2.61 and 2.65 for Maragondon, Ternate and Alfonso. The test of homogeneity is done. This shows a χ^2 value of 42.095 at 20 d.f. with a p -value of 0.00268. Again, the distribution was found to be significantly different between Maragondon and Alfonso (using chi-square test) with a p -value of 4.2×10^{-4} .

The frequency distributions for total number of premature deliveries and total number of abortions were found homogeneous with the chi-squares having p -values of > 0.01 (Tables 13 and 14 and Figure 8). The median number of premature deliveries is in the range of 0.53 to 0.54 while that of abortions is 0.62 to 0.65.

For the total number of children presently alive, Table 15 and Figure 9 show the distribution. The median numbers of living children are calculated to be 2.68, 2.49 and 2.54 for Maragondon, Ternate and Alfonso respectively. The χ^2 value is found to be moderately significant with a p -value of 0.026.

KNOWN CHRONIC DISEASES OF RESPONDENTS	MARAGONDON		TERNATE		ALFONSO	
	Resp.	Rate No./100	Resp.	Rate No./100	Resp.	Rate No./100
1. Hypertension	265	12.60	133	12.42	206	8.56
2. Heart Disease	155	7.36	48	4.48	99	4.11
3. Goiter	155	7.36	33	3.08	218	9.05
4. Tuberculosis	139	6.60	21	1.96	60	2.49
5. Dis. of Urinary Tract	114	5.41	39	3.64	47	1.95
6. Anemia	90	4.27	8	0.74	13	0.54
7. Dis. of Rep. Tr.	10	0.47	3	0.28	10	0.41
8. Malignant Diseases	2	0.09	1	0.09	-	-
9. Malaria	1	0.04	9	0.84	-	-
10. Medium/ Major Operation	390	18.52	181	16.90	451	18.74

Table 9 : Known past illnesses/operations of respondents

KNOWN CHRONIC DISEASES OF RESPONDENTS IMMEDIATE FAMILY	MARAGONDON		TERNATE		ALFONSO	
	Resp.	Rate No./100	Resp.	Rate No./100	Resp.	Rate No./100
1. Hypertension	591	28.07	292	27.26	654	27.17
2. Tuberculosis	528	25.08	126	11.76	289	12.01
3. Heart Diseases	406	19.28	181	16.90	363	15.08
4. Dis. of Upper Resp. Tract	80	3.80	42	3.92	47	1.95
5. Malignant Diseases	36	1.71	13	1.21	42	1.74
6. Goiter	30	1.42	11	1.02	69	2.86
7. Dis. of Urinary Tract	27	1.28	10	0.93	15	0.62
8. Diabetes	11	0.52	19	1.77	23	0.95
9. Anemia	9	0.42	2	0.18	7	0.29
10. Dis. of Reprod.	7	0.33	-	-	4	0.16
11. Malaria	2	0.09	1	0.09	-	-
12. Medium/Major Operation	347	16.48	130	12.14	471	19.57

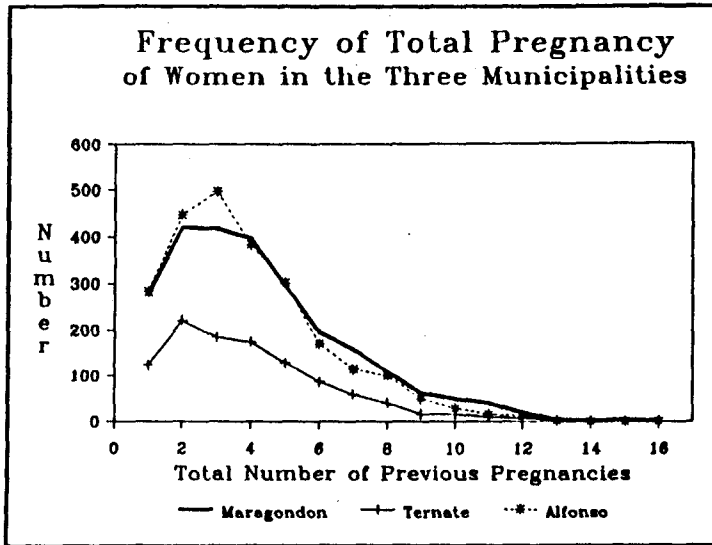
Table 10. Diseases of the families of the respondents

TOTAL NUMBER OF PREGNANCY	MARAGONDON		TERNATE		ALFONSO	
	No.	%	No.	%	No.	%
1	278	11.31	123	11.48	283	11.77
2	420	17.09	221	20.63	447	18.59
3	419	17.05	185	17.27	497	20.67
4	397	16.16	175	16.34	383	15.93
5	296	12.05	128	11.95	302	12.56
6	197	8.02	87	8.12	171	7.11
7	159	6.47	59	5.51	114	4.74
8	109	4.44	40	3.73	100	4.16
9	62	2.52	16	1.49	49	2.04
10	49	1.99	16	1.49	29	1.21
11	40	1.63	9	0.84	16	0.67
12	19	0.77	8	0.75	13	0.54
13	4	0.16	3	0.28	1	0.04
14	2	0.08	0	0.00	0	0.00
15	4	0.16	1	0.09	0	0.00
16	2	0.08	0	0.00	0	0.00

Median= 3.28 preg Median = 3.04 preg Median= 2.95 preg

Table 11.: Frequency distribution of the total number of pregnancies for each woman respondent.

Figure 6

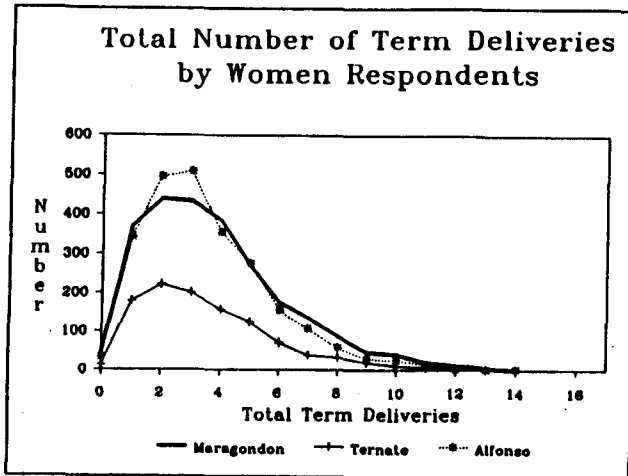


TOTAL NUMBER OF TERM DELIVERIES	MARAGONDON		TERNATE		ALFONSO	
	No.	%	No.	%	No.	%
0	41	1.67	12	1.12	32	1.33
1	370	15.09	179	16.71	342	14.21
2	439	17.90	222	20.73	497	20.65
3	434	17.70	201	18.77	511	21.23
4	384	15.66	156	14.57	355	14.75
5	270	11.01	124	11.58	276	11.47
6	175	7.14	70	6.54	155	6.44
7	133	5.42	38	3.55	108	4.49
8	87	3.55	32	2.99	59	2.45
9	45	1.84	19	1.77	28	1.16
10	40	1.63	10	0.93	27	1.12
11	19	0.77	5	0.47	13	0.54
12	11	0.45	2	0.19	2	0.08
13	4	0.16	0	0.00	1	0.04
14	0	0.00	1	0.09	1	0.04
15	0	0.00	0	0.00	0	0.00

Median= 2.87 preg Median = 2.61 preg Median= 2.65 preg

Table 12 : Frequency distribution of total number of term deliveries of the women respondents.

Figure 7



TOTAL NUMBER OF PREMATURE DELIVERIES	MARAGONDON		TERNATE		ALFONSO	
	No.	%	No.	%	No.	%
0	2,257	91.86	993	92.72	2,265	94.10
1	175	7.12	64	5.98	119	4.94
2	19	0.77	10	0.93	19	0.79
3	3	0.12	1	0.09	2	0.08
4	0	0.00	3	0.28	2	0.08
5	0	0.00	0	0.00	0	0.00
6	2	0.08	0	0.00	0	0.00
7	1	0.04	0	0.00	0	0.00

Median= 0.54 deliv Median= 0.54 deliv Median= 0.53 deliv

Table 13 : Frequency distribution of total number of premature deliveries of women respondents

TOTAL NUMBER OF ABORTIONS	MARAGONDON		TERNATE		ALFONSO	
	No.	%	No.	%	No.	%
0	1,903	77.45	866	80.86	1,955	81.22
1	423	17.22	154	14.38	367	15.25
2	92	3.74	34	3.17	66	2.74
3	28	1.14	11	1.03	15	0.62
4	9	0.37	5	0.47	3	0.12
5	1	0.04	1	0.09	1	0.04
6	0	0.00	0	0.00	0	0.00
7	0	0.00	0	0.00	0	0.00
8	1	0.04	0	0.00	0	0.00

Median = 0.65 abor Median = 0.62 abor Median = 0.62 abor

Table 14 : Frequency distribution of total number of abortions of each women respondent

TOTAL NUMBER OF LIVING CHILDREN	MARAGONDON		TERNATE		ALFONSO	
	No.	%	No.	%	No.	%
0	43	1.75	12	1.12	35	1.45
1	392	15.95	182	16.99	359	14.91
2	473	19.25	241	22.50	518	21.52
3	471	19.17	207	19.33	537	22.31
4	404	16.44	184	17.18	378	15.70
5	271	11.03	108	10.08	252	10.47
6	152	6.19	58	5.42	152	6.31
7	121	4.92	38	3.55	83	3.45
8	72	2.93	23	2.15	43	1.79
9	27	1.10	10	0.93	23	0.96
10	20	0.81	4	0.37	20	0.83
11	4	0.16	2	0.19	4	0.17
12	6	0.24	1	0.09	2	0.08
13	0	0.00	1	0.09	1	0.04
14	1	0.04	0	0.00	0	0.00

Median = 2.68 l.c. Median = 2.49 l.c. Median = 2.54 l.c.

Table 15 : Frequency distribution of total number of children presently alive.

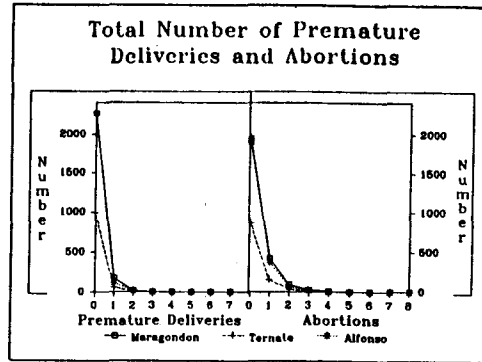
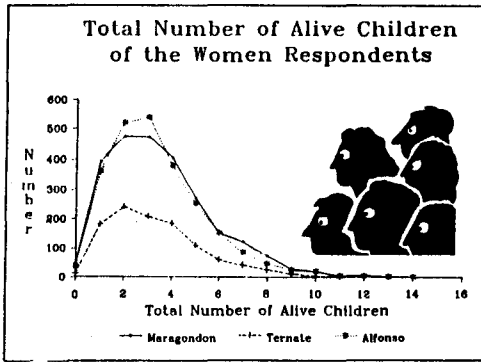


Figure 8 & 9

Outcomes of Pregnancies

The outcomes of all pregnancies by the women respondents are shown in Table 16. The status of the fetus upon delivery shows a general pattern where livebirths > abortions > stillbirths > induced abortions. Within this general pattern however are shown highly significant statistical differences. Subjecting the values for the three municipalities to χ^2 test reveals that the χ^2 is 66.18 at 6 d.f. with a α -value of 2.19×10^{-12} . Further tests between the values of Maragondon and Ternate, Maragondon and Alfonso, and Ternate and Alfonso give the following results.

	χ^2 value	D.F.	p value
1. Maragondon vs. Ternate	46.57	3	4.48×10^{-7}
2. Maragondon vs. Alfonso	13.807	3	0.00318
3. Ternate vs. Alfonso	27.16	3	4.99×10^{-6}

The result of the statistical tests is interpreted to show that the values of the outcomes are different because of differences in the factors affecting them. To public health planners, it is a clear indication that development of intervention programs require flexibility that can adapt to the needs of the communities. In meeting these needs, dominant risk factors resulting to abnormal outcomes of pregnancies must be identified and given priorities in the development of strategies.

OUTCOMES OF PREGNANCIES	MARAGONDON		TERNATE		ALFONSO	
	No.	%	No.	%	No.	%
I. Fetal Status						
1. Livebirth	9414	91.18	4181	91.75	8560	92.08
2. Stillbirth	166	1.61	91	2.00	176	1.88
3. Abortion	733	7.10	255	5.60	548	5.90
4. Induced Abortion	12	0.12	30	0.66	13	0.14
II. Age of Gestation						
1. Term	9323	90.34	4185	91.84	8578	92.25
2. Not Term	997	9.66	372	8.26	719	7.75

Table 16 : Outcomes of all pregnancies of women respondents as to fetal status and age of gestation.

Assuming that the women respondents represent all of the women who delivered for the years 1980 to 1987 in the three municipalities, then the trends of the various outcomes of pregnancies are as shown in Table 17, Figures 10 and 11.

Y E A R	LIVEBIRTHS			STILLBIRTHS			ABORTIONS			INDUCED ABORTIONS		
	M	T	A	M	T	A	M	T	A	M	T	A
80	511	167	433	6	3	8	26	7	27	0	3	0
81	476	201	441	8	1	8	24	7	19	0	2	1
82	429	207	434	6	4	13	23	8	21	2	0	0
83	494	176	434	6	7	7	31	11	16	0	1	0
84	521	219	459	8	2	7	32	10	25	1	0	0
85	506	200	436	7	4	6	39	5	19	0	1	0
86	481	239	432	8	7	7	46	9	27	0	0	0
87	523	239	453	8	8	8	54	16	33	1	1	3

M = MARAGONDON T = TERNATE A = ALFONSO

Table 17: Trends in the different outcomes of pregnancies.

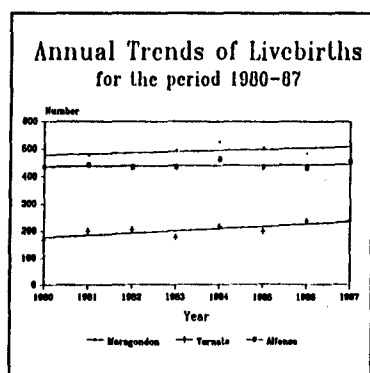


Figure 10

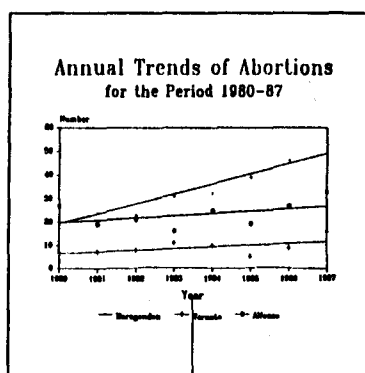


Figure 11

CHARACTERISTICS	MARAGONDON		TERNATE		ALFONSO	
	No.	%	No.	%	No.	%
MANNER OF DELIVERY						
1. Spontaneous Cephalic	9,098	88.25	3,706	88.70	8,362	90.20
2. Spontaneous Breech	214	2.08	93	2.23	164	1.77
3. Spontaneous Abortion	627	6.08	203	4.86	429	4.63
4. Operative	370	3.59	176	4.21	315	3.40
PLACE OF DELIVERY						
1. Home	8,816	85.30	3,546	84.93	7,766	83.79
2. Hospital	1,387	13.42	591	14.16	1,452	15.67
3. Clinic or RHU	123	1.19	26	0.62	43	0.46
4. Lying-in	4	0.04	7	0.17	3	0.03
5. Others	5	0.05	5	0.12	4	0.04
BIRTH ATTENDANT						
1. Doctor	1,498	14.52	646	13.40	1,552	16.75
2. Nurse	112	1.09	3	0.06	77	0.83
3. Midwife	2,919	28.30	2,077	43.07	2,039	22.00
4. Hilot (TBA)	5,488	53.21	2,024	41.97	5,414	58.42
5. Others	191	1.85	63	1.31	112	1.21
6. None	106	1.03	9	0.19	74	0.80

Table 18: Selected characteristics surrounding delivery of pregnancies in the selected municipalities.

PRESENT STATUS OF PREGNANCIES BORN ALIVE	MARAGONDON		TERNATE		ALFONSO	
	No.	Rate /1000	No.	Rate /1000	No.	Rate /1000
1. Presently Alive	-	-	3900	8049		
2. Died During:	-	-				
a. Neonate	-	-	80	19.1	201	23.5
b. Post-neonatal	-	-	76	18.2	132	15.4
c. Pre-schooler	-	-	96	23.0	124	14.5
d. Schooler	-	-	21	5.0	43	5.0
e. Adult	-	-	8	1.9	11	1.3

Table 19: Present status of pregnancies born alive

All the trends for the different outcomes of each municipality were subjected to a linear regression analysis and analysis of variance, only the trend of abortions in Maragondon would be found to be significantly increasing at the rate of 3.54 abortions per year with its f-value of 23.126 and a -value of 0.004845.

Other information relevant to birth deliveries is shown in Table 18. As to the manner of delivery, note that the percentage of operative deliveries is less than 5%. This speaks of the probability that a mother may have to be operated as a result of her pregnancy. Note further that there is a higher probability for spontaneous abortion to occur than operative delivery. The high percentage of home deliveries is typical in rural communities. This may be partly due to the scarcity of hospitals in the area and the culture prevailing in rural Philippines.

It was decided after the first municipality (Maragondon) was surveyed that the present status of those pregnancies born alive be determined. Table 19 shows what happened to those pregnancies and the death rate per 1000 livebirths is then computed.

The following definitions were used in the above classifications. Neonates are those between birth and 28 days of life. Post-neonates refer to those between 28 days up to 12 months. Pre-schoolers are aged between 1 to 5 years old. Schoolers are from 6 to 17 years old. Adults are aged 18 years old and beyond.

Based on the same table, the infant mortality rate is computed to be 37.3 and 38.9 infant deaths per 1000 live births for Ternate and Alfonso respectively. Note that deaths among pre-schoolers are comparatively high. This clearly justifies the establishment of "Under Six Clinics". The leading causes of deaths are shown in Table 20. The stated causes are based on the knowledge of the women respondents and are not directly from the vital registry of the municipalities. Its usefulness and significance are in the relative quantities compared with other causes.

Some observations that can be deduced from the Table are the following:

1. Bronchopneumonia is pervasive in all four age groupings.
2. Immunizable diseases such as diphtheria and tetanus remain as a significant cause of death among the children of respondents.
3. Malnutrition becomes a significant cause of death as early as the post-neonatal period.

LEADING CAUSES OF MORTALITIES DURING SPECIFIED PERIOD	MARAGONDON		TERNATE		ALFONSO	
	No.	Rate /1000 l.b.	No.	Rate /1000 l.b.	No.	Rate /1000 l.b.
I. Neonatal Period						
a. Sepsis	-	-	36	9.2	14	1.7
b. Congenital Heart Dis.	-	-	10	2.6	11	1.4
c. Broncho-pneumonia	-	-	3	0.8	5	0.6
d. Convulsion	-	-	1	0.3	5	0.6
e. Blood Dyscrasia	-	-	1	0.3	0	0.0
f. Cranial Anomaly	-	-	1	0.3	1	0.1
g. Gastro Enteritis	-	-	0	0.0	5	0.6
h. Liver Diseases	-	-	0	0.0	4	0.5
i. Meningitis	-	-	0	0.0	2	0.2
j. Appendicitis	-	-	0	0.0	1	0.1
II. Post-neonatal Period						
a. Broncho-pneumonia	-	-	22	5.6	34	4.2
b. Convulsion	-	-	7	1.8	3	0.4
c. Gastro Enteritis	-	-	7	1.8	7	0.9
d. Sepsis	-	-	5	1.3	6	0.7
e. Malnutrition	-	-	4	1.0	2	0.2
f. Congenital Heart Dis.	-	-	3	0.8	12	1.5
g. Skin Diseases	-	-	3	0.8	4	0.5
h. Diphtheria	-	-	2	0.5	5	0.6
i. Diseases of the Liver	-	-	2	0.5	4	0.5
j. Meningitis	-	-	1	0.3	1	0.1

LEADING CAUSES OF MORTALITIES DURING SPECIFIED PERIOD	MARAGONDON		TERNATE		ALFONSO	
	No.	Rate /1000 l.b.	No.	Rate /1000 l.b.	No.	Rate /1000 l.b.
III. Pre-Schooler						
a. Broncho-pneumonia	-	-	26	6.7	35	4.3
b. Gastro Enteritis	-	-	9	0.2	15	1.9
c. Congenital Heart Dis.	-	-	9	0.2	7	0.9
d. Meningitis	-	-	7	1.8	1	0.1
e. Diphtheria	-	-	6	1.5	7	0.9
f. Kidney Diseases	-	-	3	0.8	1	0.1
g. Malnutrition	-	-	3	0.8	1	0.1
h. Diseases of the Liver	-	-	2	0.5	3	0.4
i. Tetanus	-	-	2	0.5	4	0.5
j. Accident	-	-	2	0.5	2	0.2
IV. Schooler						
a. Broncho-pneumonia	-	-	5	1.3	2	0.2
b. Gastro Enteritis	-	-	3	0.8	4	0.5
c. Congenital Heart Dis.	-	-	2	0.5	10	1.3
d. Meningitis	-	-	5	1.3	7	0.9
e. Diphtheria	-	-	0	0.0	0	0.0
f. Kidney Diseases	-	-	0	0.0	1	0.1
g. Malnutrition	-	-	1	0.3	1	0.1
h. Dis. of the Liver	-	-	1	0.3	2	0.2
i. Tetanus	-	-	1	0.3	2	0.2
j. Accident	-	-	5	1.3	2	0.2

Table 20 : Leading Causes of Deaths Among Children of Women Respondents

Family Planning Utilization

Two questions in the survey were asked regarding utilization of family planning. The first is whether the respondent went into family planning after each pregnancy. The second is what type of family planning method was used after each pregnancy. The results are shown in Tables 21 to 24 and Figures 12 to 15. Only births between 1980 - 1987 were included in this part of the analysis

In Table 21 and Figure 12, it is noted that the modes of the percentage distribution are after the fourth pregnancy for the three municipalities. They also show that the patterns of behavior related to the acceptance of family planning are consistent up to the sixth pregnancy. From the seventh pregnancy onwards, the levels of acceptance differ from each municipality. Could the fatalistic attitude of the mothers overcome their desire for a manageable size of family? Or has the education, information and communication (IEC) campaign in the municipalities failed to motivate these groups of mothers?

Nth NUMBER OF PREG.	MARAGONDON			TERNATE			ALFONSO		
	NO. FP USERS	%	Total Response	NO. FP USERS	%	Total Response	NO. FP USERS	%	Total Response
1	83	8.93	929	38	8.96	424	49	5.56	881
2	125	14.85	842	54	14.14	382	84	12.50	828
3	111	15.48	717	45	15.20	296	110	16.37	672
4	111	18.66	595	45	19.74	228	90	17.96	501
5	72	18.00	400	23	14.02	164	56	16.57	338
6	41	13.80	297	13	12.75	102	27	12.50	216
7	27	13.24	204	5	7.14	70	14	9.66	145
8	10	7.69	130	6	13.04	46	12	12.50	96
9	2	2.25	89	3	12.50	24	6	11.11	54
10	3	5.56	54	0	0	15	4	10.53	38
11	4	11.43	35	2	15.38	13	0	0	19
12	0	0	12	1	16.67	6	1	12.50	8
13	0	0	6	0	0	2	0	0	2
14	0	0	5	0	0	1	0	0	2
15	0	0	4	0	0	1			
16	0	0	1						

Table 21 : Number and percentage of responders who started family planning after the ninth pregnancy.

Nth PREG-NANCY	PILLS TOTAL		IUD		CONDOM		BTL		INJECTION		NONE	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	49	5.3	28	3.0	2	0.2	1	0.1	3	0.3	84691.1	929
2	63	7.5	46	5.5	4	0.5	7	0.8	7	0.8	71484.9	841
3	32	4.5	33	4.6	2	0.3	39	5.4	6	0.8	60584.4	717
4	22	3.7	32	5.4	3	0.5	49	8.3	3	0.5	48481.6	593
5	12	3.0	20	5.0	2	0.5	38	9.5	0	0.0	32882.0	400
6	9	3.0	7	2.4	0	0.0	24	8.1	0	0.0	25686.5	296
7	4	2.0	6	2.9	2	1.0	15	7.4	0	0.0	17786.8	204
8	1	0.8	5	3.8	0	0.0	4	3.1	0	0.0	12092.3	130
9	0	0.0	1	1.1	0	0.0	1	1.1	0	0.0	8797.8	89
10	0	0.0	1	1.9	0	0.0	2	3.7	0	0.0	5194.4	54
11	1	2.9	1	2.9	0	0.0	2	5.7	0	0.0	3188.6	35

Table 22 : Type of Family Planning methods used after each pregnancy in maragondon.

Nth PREG-NANCY	PILLS TOTAL		IUD		CONDOM		BTL		INJECTION		NONE	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	37	8.7	0	0.0	1	0.2	0	0.0	1	0.2	38590.8	424
2	46	12.0	4	1.0	1	0.3	1	0.3	3	0.8	32785.6	382
3	26	8.8	1	0.3	2	0.7	13	4.4	2	0.7	25085.0	294
4	32	14.0	2	0.9	0	0.0	9	3.9	2	0.9	18380.3	228
5	13	7.9	1	0.6	0	0.0	8	4.9	1	0.6	14186.0	164
6	6	5.9	0	0.0	1	1.0	6	5.9	0	0.0	8987.3	102
7	2	2.9	0	0.0	0	0.0	2	2.9	1	1.4	6592.9	70
8	2	4.3	1	2.2	0	0.0	3	6.5	0	0.0	4087.0	46
9	2	8.3	0	0.0	0	0.0	1	4.2	0	0.0	2187.5	24
10	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0
11	1	7.7	0	0.0	0	0.0	1	7.7	0	0.0	1184.6	13
12	1	16.7	0	0.0	0	0	0	0	0	0.0	583.3	6

Table 23 : Type of family planning methods used after each pregnancy in Ternate.

Nth PREG-NANCY	PILLS TOTAL		IUD		CONDOM		BTL		INJECTION		NONE	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1	41	4.7	3	0.3	4	0.5	1	0.1	0	0.0	83294.4	881
2	64	7.7	3	0.4	8	1.0	9	1.1	0	0.0	74489.9	828
3	49	7.3	3	0.4	4	0.6	49	7.3	1	0.1	56284.1	668
4	26	5.2	0	0.0	2	0.4	59	11.8	1	0.2	41282.4	500
5	13	3.9	0	0.0	2	0.6	39	11.6	1	0.3	28283.7	337
6	1	0.5	0	0.0	1	0.5	25	11.6	0	0.0	18987.5	216
7	2	1.4	1	0.7	2	1.4	9	6.2	0	0.0	13190.3	145
8	0	0.0	1	1.0	2	2.1	9	9.4	0	0.0	8487.5	96
9	2	3.7	0	0.0	0	0.0	4	7.4	0	0.0	4888.9	54
10	0	0.0	0	0.0	0	0.0	4	10.5	0	0.0	3489.5	38
11	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
12	0	0.0	0	0.0	0	0.0	1	12.5	0	0.0	787.5	8

Table 24 : Type of Family Planning methods used after ach pregnancy in Alfonso

Figure 13 shows that pills is the preferred method of contraception after the first few pregnancies. It reaches its peak on the second pregnancy and slowly declines. This decline is compensated for by the increasing number of acceptors of bilateral tubal ligation (BTL) after the second pregnancy (Figure 15). The use of intrauterine devices seems to be accepted after any pregnancy but remains low as shown by Figure 14.

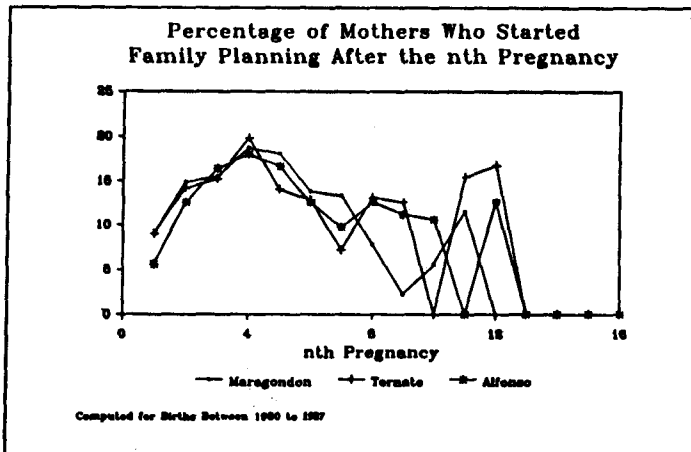


FIGURE 12

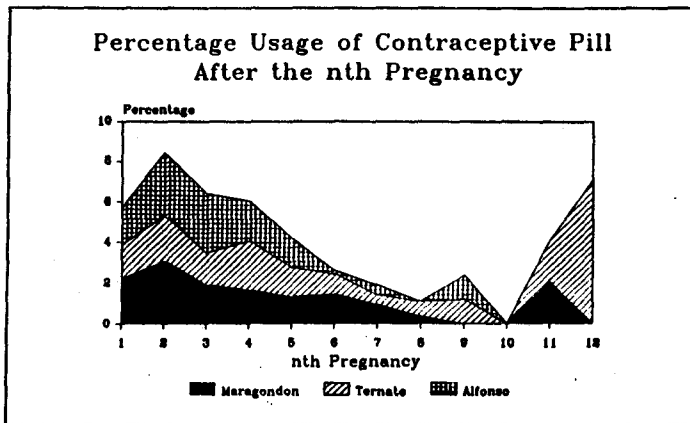


FIGURE 13

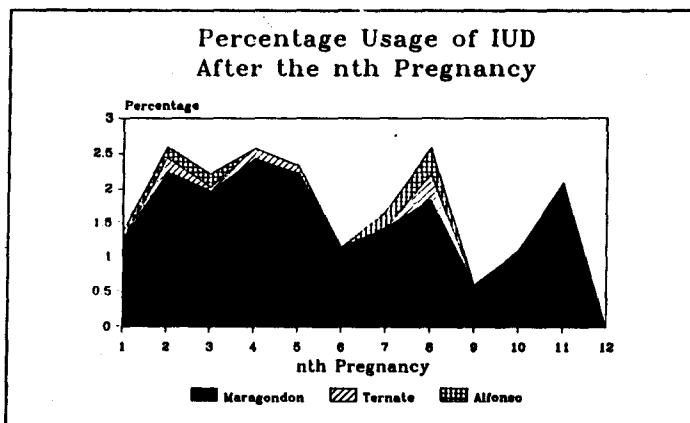


FIGURE 14

In terms of the consistent promotion of pills, IUD and bilateral tubal ligation, Maragondon seems to be the only municipality where all three are accepted. Alfonso utilizes only pills and BTL while Ternate uses pills.

The reasons for the generally low usage of Family Planning methods were not asked. One reason may be because of the low number of health personnel adequately trained especially on IUD insertion and bilateral tubal ligation. Another reason may be the lack of intrauterine devices and other supplies needed. It may also be because of a high degree of anxiety among prospective acceptors. Other explanations could be hypothesized but it is best that further study be made on this matter.

Local Risk Factors

In determining the more prevalent risk factors of pregnancy in the three municipalities, records of pregnancies for the years 1980 to 1987 were used from the database. Each risk factor under consideration was cross tabulated with an abnormal outcome of pregnancy. The abnormal outcome selected is dead product of conception. This encompasses abortions, stillbirths and induced abortion. Relative risks were computed and subjected to chi square test of significance. The interval estimate of the relative risk were computed at 95% confidence interval. These were done with the aid of a statistical software "Epiinfo". The results of these series of analyses are shown in Table 25.

Risk Factor under Evaluation	TEST RESULT	Municipalities w/ Significant Findings	Relative Risk Estimate	Confidence Interval at 95%	X ² Value (Yates corrected used for 2x2)	p-value
1. Not Legally Married	Not Significant for all					
2. Jobless Husband	Significant for one	Ternate	3.01	1.23 <RR< 8.17	7.19	0.00732
3. Up to Elementary Education	Significant for one	Maragondon	0.74	0.60 <RR< 0.91	8.11	0.00440
4. Family Income at Poverty Level	Not Significant for all					
5. Isolated House	Not Significant for all					
6. House Floor Area < 30 sqm.	Not Significant for all					
7. Absence of Toilet	Not Significant for all					

* Fisher exact value is used because of an expected cell value of less than 5.

Table 25a : Summary of Statistical Tests Results Using Dead Product of Conception as the Outcome of Pregnancies for 1980 - 1987.

Risk Factor under Evaluation	TEST RESULT	Municipalities w/ Significant Findings	Relative Risk Estimate	Confidence Interval at 95%	X ² Value (Yates corrected used for 2x2)	p-value
8. Absence of Safe Water	Not Significant for all					
9. Hypertension	Significant for one	Ternate	2.07	1.34 <RR< 3.57	11.00	0.00091
10. Heart Disease	Significant for two	Ternate Alfonso	3.17 1.71	1.92 <RR< 6.70 0.96 <RR< 3.16	19.92 3.77	0.0000081 0.05209
11. Tuberculosis	Not Significant for all					
12. Smokes Cigarettes	Significant for one	Ternate	1.89	1.11 <RR< 3.46	5.97	0.01458
13. Drinks Alcohol	Significant for one	Ternate	2.22	0.82 <RR< 5.97	4.08	0.05497*
14. Gambles	Not Significant for all					
15. Unwanted Pregnancy	Significant for all municipalities	Maragondon Ternate Alfonso	2.63 2.02 1.42	2.05 <RR< 3.37 1.42 <RR< 2.89 1.07 <RR< 1.87	59.97 14.36 5.45	0.00000 0.00015 0.01955
16. Prolonged Fever	Significant for all municipalities	Maragondon Ternate Alfonso	1.54 2.55 2.48	1.01 <RR< 2.33 1.31 <RR< 5.68 1.61 <RR< 4.52	3.44 8.56 16.74	0.06368 0.00460 * 0.00004
17. Severe Vomiting	Significant for two municipalities	Ternate Alfonso	1.63 1.34	1.08 <RR< 2.59 0.99 <RR< 1.87	5.75 3.80	0.01648 0.05117
18. Edema w/ Hypertension	Not Significant					
19. Uterine Massage	Significant for all municipalities	Maragondon Ternate Alfonso	0.60 0.31 0.24	0.49 <RR< 0.73 0.19 <RR< 0.42 0.16 <RR< 0.28	24.33 45.40 152.15	0.00000 0.00000 0.00000

* Fisher exact value is used because of an expected cell value of less than 5.

Table 25b (con't) : Summary of Statistical Tests Results Using Dead Product of Conception as the Outcome of Pregnancies for 1980 - 1987.

From Table 25, the risk factors found statistically significant for Maragondon are unwanted pregnancy (RR = 2.63) and prolonged fever (RR = 1.54). In Ternate, the risk factors are jobless husband (RR = 3.01), hypertension (RR = 2.07), heart disease (RR = 3.17), smokes cigarettes (RR = 1.89), drinks alcohol (RR = 2.22), unwanted pregnancy (RR = 2.02), prolonged fever (RR = 2.55) and severe vomiting (RR = 1.63). The risk factors in Alfonso are heart disease (RR = 1.71), unwanted pregnancy (RR = 1.42), prolonged fever (RR = 2.48) and severe vomiting (RR = 1.34).

There are two factors which were initially considered detrimental to pregnancy but the analysis showed beneficial effects. These beneficial effects are shown by the relative risk values of less than 1. These are low educational attainment (up to elementary education level) and uterine massage. Low educational attainment was cited by Shoham-Yakubovich and Berell to be a risk factor of pregnancy. In Maragondon, low level of education has somehow affected positively the outcome of pregnancy. The explanation may be found in the character of this sector of women. They may be more inclined to follow medical advice. It must be remembered that in developing countries like the Philippines, low education is determined by poverty and not low intelligence.

Uterine massage, on the other hand, was explored because of the high prevalence of uterine massage as a means to abort pregnancy. In this study, 62% to 72% of all pregnancies of women in the three municipalities had uterine massage. It was however described as gentle upward motion which was believed to elevate the uterus and thus relieve them of pelvic heaviness. It is also believed to correct any abnormal position of the uterus so that the fetus is not compromised. This behavior may be part of Filipino culture. Although it is an outward manifestation of the effect on an expectant mother, further study needs to be conducted to determine whether the effect of this type of massage does indeed have a direct beneficial effect, confirmation of which is of medical importance.

The analyses performed in determining the more dominant risk factors prevalent in each municipality are not corrected for confounders. Because of this, the values of the relative risks are just estimates. It is recognized that a logistic regression analysis would be able to correct the confounders; however, available resources do not permit this (specifically, the lack of a more powerful computer system). In spite of this deficiency, this study however showed that out of the many known and proven risk factors in pregnancy, there are those which are more dominant in affecting the abnormal outcome of pregnancies. From the public health point of view, it is important to be aware of this because of the following:

- To be relevant to the needs of the community, maternal health services must be adapted according to the more dominant risk factors.

- The health information system at the community level must be strengthened so that these types of information are easily determined by the community health service providers.

- High risk pregnancy screening instruments for individual mothers can be simplified at the community level and used by barangay health volunteers.

- A high relative risk value should alarm the health authorities into instituting specific interventions in order to control the problem.

Conclusion

The status of maternal health in the three municipalities of Cavite were shown to vary and be strongly affected by different socio-environmental factors on one hand and the medical history of the mother on the other hand. Unwanted pregnancy and prolonged fever as risk factors are common among them. These may indicate their universal importance which the national health planners must address their services to. In particular, health education must be strengthened and directed towards value formation in order to correct the high incidence of unwanted pregnancies. Increasing the accessibility and improving the quality of health services are needed to detect cases that may lead to prolonged fever during pregnancy.

Surprisingly, economic conditions as reflected in the respondents' income and poor housing environment did not show positive correlation with dead pregnancy outcome. This may be because the intrauterine environment gives ample protection to the fetus even when the external environment is harsh.

Besides being able to show the dominant risk factors in the three municipalities, this study has provided vital information at the local levels which are not only of public health importance but also of social importance. These are:

- the common-law status of women within the female fertile period ranges between 5.44% to 14.37%.

- the percentage of women who are housewives ranges from 68.46% to 75.15%.

● the occupations of the husbands predominantly require manual activities (agricultural worker and laborer). They comprise from 65.35% to 70.51% of the total number of husbands. Unemployed husbands range from 0.20% to 9.89%.

● only a minority of both women and their husbands ever reach the collegiate level (14.98% to 18.61% for women and 9.97% to 14.62% for their husbands). Also, there are more husbands who do not have any form of formal education compared to their wives.

● family income below the poverty level of 3,000 are noted in 82.06% to 93.04% of couples.

● within each municipality, there are areas where families live in isolation and accessibility to basic services is a problem.

● overcrowding within their dwelling units are noted in a significant number of the families.

● no toilet facility is found from 33.17% to 55.88% of households. Safe drinking water is only available to 24.18% to 50.60% of families.

● vices within the municipalities are noted with gambling dominating other forms.

● supernatural beliefs predominate in the two less economically well-off municipalities (Maragondon and Ternate).

● chronic diseases of women have been identified and ranked. Cardiovascular diseases rank first among the others.

● if obstetric scoring can be applied to mothers within the female fertile period for each municipality by using the median values for number of term pregnancies, number of premature deliveries, number of abortions and number of children presently alive, then the obstetric scores are as follows:

- a. Maragondon : (2.87 - 0.54 - 0.65 - 2.68)
- b. Ternate : (2.61 - 0.54 - 0.62 - 2.49)
- c. Alfonso : (2.65 - 0.53 - 0.62 - 2.54)

● the percentage of pregnancies resulting in live births range from 91.18% to 92.08% for the three municipalities.

● the number of abortions is shown to be significantly increasing for the municipality of Maragondon.

● the number of induced abortions may be an underestimate but there are indications to suggest that more criminally induced abortions are done in Ternate than in the other two municipalities.

● operative interventions to pregnancies are seen in 3.40% to 4.21% of all pregnancies.

● Family Planning acceptors remains generally low. It is suspected that the program is not given the necessary "push" by the health workers.

Reference

A Study on the Status of Maternal and Child Health and Associated Risk Factors in th municipalities of Aguinaldo, Alfonso, Magallanes, Maragondon, Mendez and Ternate, province of Cavite.

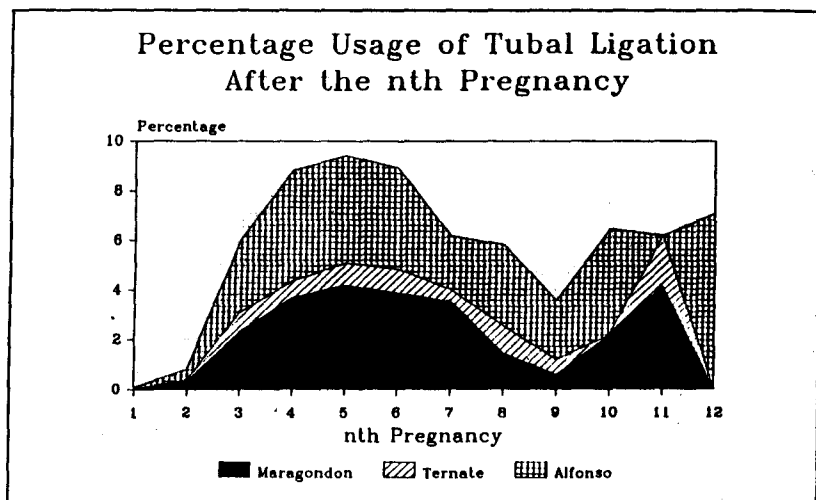


Figure 15