Maternal and Infantile Mortality in Selangor: Causes of Death during the Colonial Era in Malaya (1900 to 1940)

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Abstract

The health of mothers and infants, particularly in Malay States during the region's colonization, has not been extensively studied by historians. This study thus aims to analyze the pattern and causes of maternal and infantile mortality rates in Selangor during the colonial era from 1900 to 1940. This period covers the mass arrival of Chinese and Indian immigrants in Selangor. The study examined the three main ethnic populations in Selangor: Malays, Chinese, and Indians. The data used were obtained from an analysis of primary sources, especially from the health records of the Selangor Health Department in the national archives of Malaysia. The study found that the rate of increase in maternal and infantile mortality in Selangor during that period was caused by various factors, including the unplanned system of urbanization that led to population congestion, the lack of basic health facilities, poverty, the lack of knowledge about health care, diets followed during and after pregnancy and, finally, cultural practices inhibiting certain ethnicities from receiving modern treatment from maternity hospitals.

Key words

Selangor, women, maternal, British, ethnicities, Malays, Chinese, Indian

Introduction

Selangor was the administrative center of the Federated Malay States during the British colonization of Malaya. The formation of the Federated Malay States was closely related to economic development, which was mainly based on commercial exports, as well as the facilitation of administration. Emphasis was given to commodities that were at a premium in the world market, i.e. rubber and tin. Selangor was a

Malay state that showed rapid socioeconomic development from the time the Federated Malay States were formed. To meet the labor needs in rubber and tin, the British had to bring in laborers from India and China on a large scale to Selangor, although they also came from all over the Malay Archipelago. Some settlements had grown and formed Chinatowns and Little India neighborhoods in Malay villages such as Kampung Java, Kampung Banjar, and Kampung Kerinchi. The economic development of Selangor had attracted the highest number of women immigrants compared to other Federated States during the period from 1900 to the 1940's. These immigrants were Chinese and Indians. Selangor, with its varied multiracial ethnicities that included Malays, Chinese and Indians, is a good platform from which to analyze the pattern of maternal and infantile deaths, and the causes of mortality rates among these ethnic groups. These analyses will be able to provide a new finding by analyzing the factors that have contributed to the death of infants and mothers among these ethnicities during the colonial era.

Furthermore, the resulting population density exposed people in Selangor to related health risks. According to the records of the British administration, the major cities in the state around the first decade of the twentieth century were said to be crowded, dirty, and very densely populated, to the extent that some residents were forced to live in the streets (Manderson, 1996, p. 100). Rapid population growth unaccompanied by a sufficient increase in infrastructure, resulted in declining living standards. The colonial government's efforts to develop a capitalistic economy indirectly contributed to an environment that encouraged the development of disease. Among those who were heavily affected as a result of poor planning were mothers and babies. Therefore, the objective of this paper is to analyze the pattern of maternal and infantile deaths and the causes of the high maternal and infantile mortality rates in Selangor. This study is a social history research project that uses the historical method to analyze the primary sources at the National Archive in Kuala Lumpur in order to find the pattern of maternal and infantile deaths in Selangor by emphasizing the aspect of health.

Usually, historians have been more interested in discussing the economics and politics of Selangor during the British era. (Khoo, 1985; Kaur, 1992; Gullick, 2007). Research into social history aspects, particularly that which refers to women's health, has not been given enough

attention. Normally, aspects of women's health have been discussed and debated based on medical perspectives. (Mohd Ali, 1987; Harun, 1988; Manderson, 1996; Wan Yusoff, 2010).

Therefore, it is important to study women's health from a social history perspective because women were one of the human resources who contributed towards the progress of the Selangor economy through their participation as laborers in both the mines and on the plantations of Selangor during the colonial era.

British Health Services

In the 1880s, qualified medical practitioners began to arrive from the United Kingdom, whereas medical operators, nurses and hospital attendants were brought in from India and Ceylon. During his visit to Malaya in 1884, Sir Cecil Smith reported that hospitals in Kuala Lumpur were in a satisfactory condition and were comparable to hospitals of other colonies. Consequently, Kuala Lumpur Hospital was expanded, and another hospital was built in Klang. As tin mining areas continued to open in Malaya, the number of health problems and diseases also increased. In 1891, Kuala Lumpur Fakir Hospital received an average of 362 patients per day, and the annual expenditure of the hospital reached $35.714 (Chai, 1967, p. 123).

The construction of government hospitals in Selangor continued to increase until 1920. Among the government hospitals in the state were the General Hospital, Malay Hospital, Bungsar Hospital (especially for Europeans), Pudu Prison Hospital, the Mental Treatment Centre, the Leprosy Treatment Centre, the Hospital of Infectious Diseases, the Homeless Ward, and Tai Wah Ward. Additionally, there were nine regional hospitals: Sg. Besi District, Kajang, Klang, Kuala Langat, Kuala Selangor, Kuala Kubu, Serendah, Rawang, and Port Swetttenham (State of Selangor Medical Institutions, 1918, p. 18). To meet the needs of the people, especially those in rural areas, the British government also provided facilities such as hospital dispensaries and mobile dispensaries (State of Selangor Medical Institutions, 1918, p. 20). Therefore, people in rural areas did not face the problem of traveling to a hospital located far away in the city. As the number of women increased following the

change in the practices of migrant workers, who were beginning to bring their families to Malaya, the medical services offered in Selangor also changed slowly and the government started to pay more attention to the health of mothers and babies. Table 1 shows the increase in the number of women in Selangor from 1921 to 1931.

Table 1
Total population by sex in Selangor for 1921 and 1931

DISTRICT/ YEAR	1921			1931		
	Total	Male	Female	Total	Male	Female
Kuala Lumpur	151,771	104,902	46,869	200,698	127,203	73,495
Ulu Selangor	53,852	38,151	15,701	69,045	43,921	25,124
Ulu Langat	40,212	25,519	14,693	57,947	34,142	23,805
Klang	64,563	42,550	22,013	78,969	48,250	30,719
Kuala Langat	37,730	23,844	13,886	53,749	31,801	21,948
Kuala Selangor	52,881	32,199	20,682	72,789	42,097	30,692
Total	401,009	267,165	133,844	533,197	327,414	205.783

Source: Adapted from British Malaya: A Report on the 1931 Census of Population.

There was an increase in the composition of the population by gender in the state. Although the number of women in 1921 represented only 33% of the total population, the percentage increased to 39% by 1931. This occurred during the economic recessions in 1922 and 1929 onwards when there was high unemployment among immigrants, especially those from China. In 1930, for example, the Immigration Restriction Ordinance was introduced to restrict the entry of male immigrants to the Malay Peninsula. This restriction of foreign immigrants was then further reinforced through the drafting of the Foreigners' Ordinance as a measure to limit the number of foreigners brought into the Malay Peninsula (Ham, 1935, p. 266). This restriction did not, however, include female immigrants. This situation had caused the rising increment of women workers in 1931 as described in Table 1. These women were brought from their respective villages by their agents to work in mining and agriculture. These women's welfare was protected by these agents (Heussler, 1981, p. 145). The agents were successful Chinese business-

men in Malaya who were known as *Taukeh*. The Two key regions showed the highest increase in the number of women: Kuala Lumpur and Kuala Selangor. Both of these areas were the focus of immigration because of the rapidly growing mining and agricultural activities there. Because women contributed to the region's economic development, the English government began to pay serious attention to the healthcare of women in Selangor.

Mother and Infant Health

As mentioned earlier, the arrival of migrants affected the composition of the population in Selangor. Although the number of men was far greater than the number of women during the early stages of migration, a change in the attitude of the migrant workers, who began to bring their families into the country, led to an increase in birth and infant mortality rates, which later caused the government to pay more attention to the healthcare of mothers and infants.

Before 1900, the British government did not give sufficient attention to the health and welfare of mothers and babies. In general, mothers and babies were not seen as having an influence on Britain's economic gains from colonization. This lack of interest in mothers and babies led to the general overlooking of women's affairs, including their health and welfare. Attention was only given to mothers during the early twentieth century because of the alarming increase in the rate of infant mortality. Various strategies were planned to reduce the mortality rate among infants and children. Accordingly, between 1902 and 1908, an act was proposed in Britain to ensure every infant was delivered by a qualified midwife and registered officially (Manderson, 1996, p. 55). Infants and children began to be seen as important national assets, especially to meet military needs. Unlike in England, in the Malay Archipelago, infants and children were seen as important national assets in terms of their contribution to supplying the manpower needed to replace imported laborers for the future. This change in opinion regarding the population and labor force of the Malay Peninsula was greatly influenced by the political situation in England where women and children welfares were given more attention too.

There is no doubt that there is a close relationship between the development of modern medicine and colonization. However, the introduction of medical institutions, training, treatment and prevention was not part of the British colonization project. All these only appeared when serious health problems arose, particularly among European officials and the labor force in general. The development of medical and health systems was based on Britain's imperialistic goals, one of which was to ensure an adequate labor force to sustain employment in the mines and rubber plantations. On the whole, mothers and babies were seen as insignificant figures in the context of colonial economic gains. The British began to realize that death or absence due to illness could only lead to the loss of a country. The issue of mothers' and infants' healthcare after the year 1900 was still not given adequate attention by the British, however. The mortality rate of mothers and babies was still high in 1935 although many new hospitals had been built by the British (Medical Department of Selangor, 1937). This tragic situation was the result of the government's inability to cater to everyone's needs in the hospitals.

Mother Mortality

Statistics regarding mother and infant mortality are a key yardstick in assessing the level of care and health services of a community. According to the official records of the Selangor Department of Medicine, most women's deaths during pregnancy or during delivery were a result of puerperal sapraemia, infection, miscarriage, and delivery complications, as shown in Table 2 (Medical Department of Selangor, 1915, p. 12; 1919, p. 12). The recorded number of cases treated in hospital, however, was much lower than the actual number because of the attitude held by women at that time; these women disliked being treated in any hospital, let alone a British hospital run by the colonialists.

As shown in Table 2, in 1914 there were only 166 cases of pregnant women seeking treatment from all hospitals in Selangor, whereas in 1918 there was a total of 243 cases. This number reflects the difficulty that the government faced in identifying the exact cause of mothers' mortality because there were not many cases referred to hospitals. The

majority of the mothers, especially Malays and Indians, chose to give birth at home even though the risk of death during childbirth was much higher without the help of a trained midwife. There were many unreported death cases. The confidentiality of information and registration among mothers could have affected the status of maternal mortality.

Table 2
Cause of mother mortality in all hospitals in Selangor in 1914 and 1918

Year	1914		1918	
Disease	Mortality	Treated Case	Mortality	Treated Case
Natural birth	2	66	1	141
Miscarriage	-	5	2	-
Obstructed labour	2	20	1	9
Torn perineum	-	1	-	3
Premature birth	2	2	1	13
Puerperal sapraemia	5	11	3	19
Other infections	5	49	4	52
Breast-related disease	-	2	-	7
Total	16	166	12	243

Source: Adapted from the Annual Reports for the Medical Department of Selangor published in 1915 and 1919.

The recorded rate of maternal mortality in Selangor, as well as in other Malay states in the early 1900s, cannot therefore be considered as entirely accurate. In cases of pregnancy and disease associated with birth, the actual number of deaths was uncertain because the reason for mortality often given by the immediate family was "fever." Malaria was perhaps one of the causes of death, as malaria attacks in pregnant mothers can cause miscarriage in the first three months of pregnancy. Mothers were also exposed to the risk of premature birth or prenatal death to the risk of obstetrical haemorrhage, which could be fatal (Musa, 2005, p. 198) In 1933, 31.3% of women who died did so because of unspecified 'fever', as compared with 21.2% in 1932 (Medical Department of Selangor, 1937, p. 27).

Table 3
Maternal mortality (in hospital and out of hospital) by ethnicity for the year 1936 in Selangor.

Ethnicity	Government hospital, estates and others			Excluding government and private hospitals			Total		
	Birth	Death	Mortality rate/ thousand people	Birth	Death	Mortality rate/ thousand people	Birth	Death	Mortality rate/ thousand people
Malay	-	-	-	5,824	93	16	5,824	93	16
Chinese	4,307	20	4.6	6,356	43	6.8	10,663	63	5.9
Indian	4,080	63	15.4	1,577	21	13.3	5,657	84	14.8
Total	8,387	83	9.9	13,757	157	11.4	22,144	240	10.8

Source: Annual Report of the Medical Department of Selangor, 1937

Table 3 shows the number of deaths during childbirth in Selangor in 1936.

Mortality rates based on Table 3 were associated with inadequate care during pregnancy; pregnancy was not viewed as a phenomenon that required extra attention in terms of nutrition and antenatal screening. Malnourished pregnant mothers were exposed to a variety of diseases; because of the discouraging response of Malays in terms of giving birth at a hospital, actual figures are not available. This is because the Malays and Indians did not report death cases to the police because the majority of the Malays who lived in villages and Indians who lived on estates were far away from the town. The maternal mortality rate among Malays and Indians, however, was on the whole high, at 16.0% and 14.8%, respectively. For Indians, the maternal mortality rates in government hospitals were high compared with mortality during childbirth outside hospitals because many cases of serious complications during labor were referred to government hospitals by the estate hospitals (Medical Department of Selangor, 1937, p. 11). The Chinese who lived in the town were treated properly in hospitals after giving birth. Usually they spent about one week after their confinement in hospital before they were discharged. At home, they were visited occasionally by health visitors, who were Europeans and Chinese. They were the government hospital visiting nurses and midwives who were well trained. The health visitors advised them on diet and nutrition, so the mothers were properly nourished (Annual Report on the Social and Economic Progress on the People of Selangor, 1938, p. 23).

Infant Mortality

Regarding the statistics of infant mortality, according to the report from the Kuala Lumpur Sanitation Board dated 29 June, 1921, the chairman of the board expressed concerns over the high infant mortality rate. During the last week of May, the infant mortality rate reached a total of 760 cases per 1,000 deaths, a death rate of 76%, with only 24% of infants surviving (Federated Malay States Annual Report of Selangor, 1921, p. 26). The birth and infant mortality rates prompted the government to pay more attention to the care of mothers and infants. The increase in births in line with the increasing mortality rate had begun to worry the government, as children were seen as important assets for the labor supply. The increase in births and deaths can be seen in Tables 4 and 5.

Table 4
Birth and infant mortality in Selangor from 1922 to 1930

Year	Population	Birth	Mortality	Mortality rate (over 1000)
1922	418,016	9,795	-	-
1923	432,333	10,120	1,907	188
1924	447,320	11,868	2,040	172
1925	463,005	13,256	2,359	178
1926	479,449	13,914	2,888	208
1927	496,647	15,892	3,018	190
1928	514,715	17,961	3,041	169
1929	533,631	18,634	3,333	179
1930	553,631	21,006	3,405	162

Source: Report of Health and Medical Department of Selangor 1922-1930

Table 4 shows the statistics on infant births and deaths for a period of more than 5 years, from 1922 to 1930. In general, the number of infant births and deaths showed an increase each year. The year 1926 recorded the highest death rates in Selangor: 13,914 babies were born and 2,888 of them died. A mortality rate that reaches 20% is considered high because it means that there are 200 deaths per 1,000 births. The lowest mortality rate was recorded in 1930, when, of 21,006 births,

there were 3,405 deaths, representing 162 deaths per 1,000 births. The mortality statistics for the first five years cannot be calculated because data on the number of infant deaths for 1922 are unavailable. For the first four years (1923 to 1926), the infant mortality rate increased by 51.4%. This was very different from the number of births for the same period of time, as the birth rate showed a mere increase of 37.4%. This means that the increase in the mortality rate was higher than that of the birth rate for specific periods. From 1927 to 1930, as mentioned earlier, the number of infant births and deaths increased every year. From 1927 to 1930, the birth rates increased by 32.2%, whereas the mortality rate increased by 12.8%. This was mainly because, in the late 1920s, numerous sanitation projects were implemented to decrease the malaria cases in the estates. The government was paying more attention to cleaning the water supply, eradicating malaria, and increasing health awareness through free movies in the villages and schools (Annual Report on the Social and Economic Progress on the People of Selangor, 1931, p. 12). In 1931, the health situation in Selangor was excellent and the infant mortality rate decreased. For example, there were 167 deaths per 1,000 births in 1930 and 127 per 1,000 in 1931. This situation was temporary, however, because from 1932 until 1935 the death rates increased, as shown in Table 5. This is because the village societies did not respond to the British health awareness campaign due to the low level of education in the villages.

Table 5
Infant birth and mortality in Selangor from 1931 to 1937

Year	Population	Birth	Mortality	Mortality rate
1931	536,756	19,056	2,416	127
1932	553,157	18,181	2,364	130
1933	571,966	17,846	2,542	142
1934	-	18,688	2,772	149
1935	-	20,391	2,853	140

Source: Adapted from the Annual Reports of the Medical Department of Selangor for the years 1930 until 1936

Until the 1930s, the infant mortality rate was still considered high in Selangor, as shown in Table 5. The years 1934 and 1935 recorded the

highest mortality rates, which were 149 and 140 deaths per 1,000 births, respectively. A comparison by ethnicity (Table 6) shows that on the whole the Chinese had the highest number of infant deaths in Selangor, followed by Indians and Malays. In some areas, however, such as Klang and Kuala Langat, the number of infant deaths was highest among the Indians. Both of these districts feature a large number of Indians because of the many rubber and coffee plantations found there. On the other hand, in Ulu Langat, Malays recorded the highest infant mortality rate. Statistics show that from 1922 to 1930, the number of births was directly proportionate to the number of deaths. Therefore, from 1931 to 1935, a decline in births also suggested a decline in deaths. This shows that the problem of infant mortality among the population of Selangor remained at a worrying level. In conclusion, it can be said that the number of deaths in Selangor was influenced by racial composition, as shown in Table 6.

Table 6
Rate of infant mortality in Selangor by ethnicity and district for 1932 and 1933

Ethnicity	Malays		Chinese		Indian		Others (Europeans, Siamese, Sikhs and Arabs)		Total	
District	1,932	1,933	1,932	1,933	1,932	1,933	1,932	1,933	1,932	1,933
KualaLumpur	106	131	755	754	201	213	6	8	1,068	1,106
Ulu Langat	75	112	80	96	26	35	-	-	181	243
Ulu Selangor	69	64	120	110	48	46	-	-	237	220
Kelang	64	80	95	97	155	141	1	-	315	318
Kuala Langat	68	100	61	67	94	122	-	-	223	289
Kuala Selangor	156	186	41	33	143	146	-	1	340	366
Total	538	673	1,152	1,157	667	703	7	9	2,364	2,542

Source: Report of Medical Department of Selangor 1933 and 1937

The statistics in Table 6 show that from 1932 until 1933, the Chinese recorded the highest death rates in the cities. The number of Chinese residents, the largest population in the city of Kuala Lumpur, was deemed to be one of the factors contributing to this percentage. Additionally, a lack of hygiene was closely associated with infant mortal-

ity even though the infants were born in hospitals. Differing levels of education were also linked to levels of infant mortality; for example, a report by the Health and Medical Department of Selangor (1933) stated that some uneducated Chinese families raised their children in two-story wooden houses where pigs were reared on the first floor while the family lived on the second floor, with holes in the timber connecting both floors. This situation caused various diseases which contributed to the death of infants.

According to the statistics, the average infant mortality in Selangor in the early twentieth century was very high and very worrying. It varied, however, according to year, region and ethnicity; in terms of maternal mortality, the Indians and Malays had the highest rates. The Indian infant mortality rates in Ulu Langat and Ulu Selangor were lower than in Kelang and Kuala Selangor because basic infrastructure, such as police stations, were not easily accessible so parents were unable to report infant deaths. Therefore, the majority of deaths in Ulu Langat and Ulu Selangor were not reported. On the other hand, the population in Kelang and Kuala Selangor had access to police stations and therefore, the majority of deaths were legally reported. This resulted in the recorded number of deaths among infants in Ulu Langat and Ulu Selangor being lower than in Kelang and Kuala Selangor. Conversely, the Chinese mother and infant mortality rates were low. For example, in 1936 (Table 3) the Chinese mortality rate was lower because they received better treatment at hospitals thanks to sponsorship and donations from their Chinese employers (Medical Department of Selangor, 1937).

Unplanned Urban System

British health officers attributed the high mortality rate to the attitude of mothers, who were not concerned about breastfeeding or about dirty or unsanitary environments (Health and Medical Department, 1939, p. 22). Overcrowding in the residential areas because of rapid population growth, coupled with the lack of infrastructure and proper drainage systems, engendered fatal diseases. The first impression of British officers arriving at colonial towns such as Kuala Lumpur was that the level of public health was poor because of excessive dirt. The drainage systems were inadequate and frequently blocked up because of the overgrowth

of *lalang* (a type of coarse grass), which eventually led to heavy floods in houses and shops (Manderson, 1996, p. 100). This situation furthered the spread of diseases such as diarrhoea and cholera (Manderson, 1996, p. 100). Unhygienic environments have been identified as one of the contributing causes of infant mortality. The annual report from the Department of Health and Medical Selangor in 1933 reported that 'fever' was a popular reason cited by parents when filing a police report on infant mortality (Health and Medical Department, 1934, p. 27). Problems such as the lack of reported birth and death statistics have created some ambiguity, however. The same complication applies to determining the exact cause of death. Until 1936, only a quarter of the actual causes of death were officially reported, whereas the rest remained unknown (Health and Medical Department, 1936, p. 8). It is likely that the number of deaths reported was much smaller than the actual number. Statistics compiled in the same year found that there were 3060 deaths due to fever, where 266 deaths or 8.7% of the total were a result of malaria, whereas 2794 or 91.3% were the result of fever (not specific) (Health and Medical Department, 1936, p. 34). The unspecified fever may be attributed to malaria that could not be detected early because the victims did not seek hospital treatment. In addition, 1,241 or 48.8% of 2542 deaths were recorded as the result of seizure (Health and Medical Department, 1936, p. 26).

The number of stillborn deaths in urban areas was higher than in rural areas, as shown in Table 7. The increased rate of stillborn deaths was associated with crowded and unplanned urban systems. It also relates to the spread of malaria in the unplanned urban system as mentioned above (Manderson, 1996, p. 100). Cholera spread in the town areas and contributed to stillbirths (Manderson, 1996, p. 100). Stillborn deaths, according to the medical definition, are infant deaths that occur after seven months of pregnancy or during the first 28 weeks of pregnancy (Musa, 2005, p. 194). Statistical problems also arise, however, because of the confusion between prenatal death and stillborn death. Medical officers often classified babies that died before or during birth under the category of live births, whereas infants who were born and lived for several hours were registered as being dead at birth, rather than as live births. Sometimes, miscarried babies were registered as being dead in the womb (Musa, 2005, p. 194). However, these data are

significant because they still reported the overall death among the infants as a whole. Table 7 shows statistics on infant births and deaths in the womb by district in Selangor in 1933.

Table 7
Total infant births and stillborn deaths by district in Selangor in 1933

District	Total births	Number of infant deaths during childbirth
Kuala Lumpur	7,437	197
Ulu Langat	1,577	97
Ulu Selangor	1,502	38
Klang	2,786	138
Kuala Langat	1,959	71
Kuala Selangor	2,585	102
Total	17,846	643

Source: Annual report of the Health and Medical Department of Selangor in 1933

Socio-Economic Factors in the Malnutrition and Mortality Rate

The mortality factor of Malay and Indian women that was closely related to the problem of poverty was malnutrition. In Selangor, 93 of 240 women who died during pregnancy or childbirth in 1936 were Malay, 84 were Indian and 63 were Chinese (Medical Department of Selangor 1937). Chinese women's mortality rate was lower because of their preference for giving birth in hospitals and because most of them lived in the city, where many health and medical services were located.

A review by the Department of Health and Medical Services in Selangor in 1936 on the pattern and level of nutrition revealed that some households that consisted of mothers and babies had poor health because their daily meals were only comprised of rice, soy sauce, salted fish, and some green vegetables. This was not limited to mothers and babies, but rather was the diet of entire households. Food such as chicken and meat was only served during feasts. Although fresh fish could be found easily in the rivers and drains, people preferred to salt and preserve the fish to extend the storage time and make serving the fish easier (Medical Department of Selangor, 1937, p. 56). The same dietary habits were also practiced by mothers after delivery:

> '…eventually we arrived at the home of the newly-born baby whose diet consists mainly of a little rice and mashed banana or a little rice and sugar; the post-natal mother exists on boiled rice, dried fish, pepper, ginger and vinegar, which is all the "pantang"(confinement) allow her for 44 days…' (Medical Department of Selangor, 1937, p. 56).

Working Mothers and Infants Caretaker

Poor health because of socioeconomic factors was also a problem faced by Indian women, especially those working on estates. Infants and children had insufficient food and had to be left at home without good care. Wages based on daily rates were probably the main factor driving mothers on estates to return to work as soon as possible after delivery. (Manderson, 1996, p. 202). This happened because employers often denied the rights of mothers to receive maternity benefits as set forth in the Labor Code. Under section 49 of the Labor Code, *'maternity benefits'* should be paid to women who were unable to work as a result of maternity leave for two months. In this section, maternity leave begins a month before and extends to a month after delivery. According to a letter from the Labor Office of the Federated Malay States to the British resident in Selangor, dated 7 August, 1922, the author, in his report to the officer on duty, called for the matter of Indian workers' welfare to be dealt with by the district engineer or district officer because of the appalling loss of life among immigrant Indians living in severe poverty (Federated Malay States Annual Report of Selangor, 1923, p. 6). Infants and children were said to be at risk of starvation because of insufficient food. At his urging, questionnaires were issued by health officers to the citizens or residents of the Federated Malay States and it was found that most employers did not comply with the Labor Code as implemented. For example, Mister Tucker, a farm manager on a rubber estate in Sungai Way, Kuala Lumpur, admitted he did not pay maternity benefits to his women workers, instead offering the benefits in the form of gifts to the children when they were six months old. He also confessed that he did not pay the women wages during their maternity leave. In contrast, they were paid daily rates (Manderson, 1996, p. 202). Factors such

as these directly encouraged mothers to work even though they were still weak and vulnerable to a number of diseases.

When mothers went to work either in the field or in the mines, their babies were left at home under the care of older children. Most children who were deemed to be "grown-ups" were, however, not capable of handling the household chores assigned to them. According to a report written by the health visitors during their home visits:

> '…in the course of one's search one very often comes across an isolated house in charge of a little girl aged eight or nine. The father and mother are away at work during the day. She scarcely moves out from the house until the parents return at night. She cooks and washes for three or four younger brothers and sisters…' (Medical Department of Selangor, 1937, p. 11).

Babies left in the care of "grown-up" children would drink milk from bottles as a substitute for human breast milk. Usually, mothers would breastfeed their children as soon as the babies were born. Notwithstanding that fact, as explained earlier, the lack of nutrition disrupted the mothers' milk production process, which caused them to be unable to breastfeed and required them to replace breast milk with animal milk. Furthermore, milk bottles were also more convenient for working mothers because of time constraints, but problems often arose when the process of milk preparation was unhygienic. As a result, babies suffered from bowel disorders such as abdominal pain, diarrhea, and dysentery, which can be fatal if not treated immediately.

Dying House

Another effect of poverty that attracted the public's attention was the high rate of mortality at Convent Children Hospital. In 1920, 366 cases of infant deaths were reported in Kuala Lumpur; among those, 155 cases were from the Convent Children Hospital. The children or infants were left there by their caregivers to find treatment. Infants who had recovered would be handed over to their families. Only orphans or children who were not sought by their families would remain there. Not

many babies or children who were sent to the hospital could be saved, however. Almost 90% of the babies delivered to the center died (Federated Malay States Report of the Health Officer, 1921). In 1920, 204 out of 261 patients sent to the hospital died. In 1921, a total of 124 infant deaths out of 171 births occurred. High mortality rates in the Convent Hospital were mostly because parents only sent their children to hospital when they were very ill.

> '…the children admitted into the Convent Hospital are however very heavily handicapped by a variety of causes among which the principal are prenatal neglect, poverty of the parents causing bad housing with its resultant evils, treatment by native doctors with native medicines, ignorance of the mothers as to the proper feeding and treatment of infants, delay in bringing the children to hospital and artificial feeding of the children in hospital…' (Federated Malay States Report of the Health Officer, 1921, p. 2).

The Convent Hospital was the resort of poor Chinese parents who sent their ill children to the hospital to avoid funeral costs. Therefore, it was hardly surprising that the British medical officer labeled the hospital "the dying house." The factors that caused children to be sent to the hospital included hunger because of poverty, insufficient breastfeeding, artificial milk supply problems and delays in treatment because of reliance on traditional treatment. The high number of deaths in the Convent Hospital is shown in Table 8. This study found that 53% of the total deaths in 1920 and 60% of the deaths in 1921 occurred within 24 hours of the children being sent to the hospital by their parents.

Table 8
Number of child deaths in Convent Hospital in 1920 and 1921

Year	Boy	Girl	Total	No. of deaths
1920	105	156	261	204
1921	86	85	171	124

Source: Federated Malay States Report of the Health Officer (1921).

Effect of Traditional Cultural View on Women and their Pregnancies

Education is one yardstick by which to measure how far the colonial power succeeded in taking care of the population's welfare. When we examine British policy on the education of local residents, we find two contradictory tendencies. On the one hand, owing to the increasing number of incoming immigrants, there was a strong call for the Malays to be provided with a minimum level of education. On the other hand, the British worried that if English education were given to the Malays, it would separate this group from its environment. This view was held by most of the early colonial administrators in the Malay Peninsula. Therefore, the education system introduced was very basic and was focused on the urban areas. The enrollment of students in English schools located in urban areas was much higher compared with Malay schools in rural areas. In 1913, the seven schools located in urban areas had 2,457 enrolled students, whereas the 49 Malay schools had only 2,539 enrolled students (Federated Malay States Report of the Health Officer, 1914, p. 2).

Women's Education

The same phenomenon applied to the growth of women's schools. By 1920, the number of schools for girls had only increased by 11, of which six were English and five were Malay schools. (Federated Malay States Annual Report of Selangor, 1921, p. 8). In addition to the low number of female students, the quality of teaching was not satisfactory because it was not easy to find female teachers. Another point to note is that girls were rarely able to finish their studies because their parents would usually take them out of school when they reached the age of nine or ten years old to prepare them for marriage or to require them to help at home. This low level of education had an adverse impact on the overall level of health care for infants, as these children were responsible for siblings at home while their parents went to work. The girls would be mothers in the future, and their lack of basic health knowledge because of their low level of education would undoubtedly influence their own children's health patterns. Therefore, it is not surprising that a large number of infants were prone to infection because

of problems associated with hygiene or sanitation.

Their ignorance in terms of health knowledge also caused these mothers to be neglectful of proper baby care. Typically, they would bathe their children every time they cried without finding out the real reason for the crying. "Heat" was seen as a reason for babies to cry, causing the babies to be bathed from head to toe (Mohd Ali, 1987, p. 18). The high frequency of bathing caused them to cough and exposed them to fever. As a result, these babies could be infected with lung disease, one of the main causes of death among infants. Visits from health visitors to families in 1925 revealed that coughing and influenza were among the most common illnesses occurring among babies during the mother's confinement period. According to the health visitors, most mothers considered the situation to be a common health problem in infants without realizing the risk of death to their babies. According to a report, "These people have no idea of the seriousness of these illnesses in the young child, beyond the fact that whooping cough was 'a cough like a cock' ... and that nearly all the babies die ... that got it" (Federated Malay States Annual Report of Selangor, 1926, p. 10).

Diseases, such as coughs, colds, and lung infections, continued to be one of the main causes of death among infants up to 1940. In 1932, these related diseases recorded the second highest mortality rate among infants in the city of Kuala Lumpur after seizures (Federated Malay States Report of the Health Officer, 1931, p. 26). In 1914, 31.2% of cases reported by the Selangor Department of Medicine involved excessive bleeding, and 6.6% of cases led to death. In 1918, 25% of cases reported deaths resulting from excessive bleeding. This percentage rate did not include cases that were not officially reported to the department (Medical Department of Selangor, 1915, p. 12). Lack of more than rudimentary knowledge about marriage and pregnancy caused young mothers to be neglectful of self-health and prenatal health. It was common practice for future mothers to go for weeks without proper treatment. In the case of complications during pregnancy, the advice and views of midwives or shamans were preferred over those of the trained government midwives. Basically the traditional midwives/shamans treated the problem depending on the complications of the mother. Usually they massaged the pregnant women and gave them *sirih (betel)* to eat and water over which spells had been said to drink because they believed the

pregnant women could be easily disturbed by bad spirits. Complications such as cramps (eclampsia) caused many deaths among pregnant mothers, especially in the rural areas. This was because any abnormalities of the fetus could not be detected during the early stages of pregnancy.

Health Knowledge

Diseases caused by inappropriate diets were still the main cause of infant mortality in 1930 and subsequent years. The tendency of mothers, especially those from the Malay community, to think that "heavy" food had more nutrients than just milk led to health risks. This community's concept of food emphasised fullness rather than nutrients. The nutrients supplied by breast milk were not given any significant attention. As a matter of fact, the practice of breastfeeding was simply abandoned because it was believed that breast milk contained impurities (Mohd Ali, 1987, p. 29).

Therefore, it was not surprising to find babies as young as one month being fed mashed banana and starch water to help accelerate their growth process (Health and Medical Department, 1936, p. 57). The introduction of feeding bottles was expected to provide the necessary nutrition as well as to assist the baby's mother. In addition to home visits, the promotion of milk bottles was also done through media advertisements and in clinics. *Straits Times* newspaper, for instance, published advertisements for Nestlé sweetened condensed milk. Maternity hospitals built in 1920 in the Malay Peninsula further encouraged this action by giving away free milk to women who visited hospitals (Musa, 2005, p. 200). Sweetened condensed milk became the choice for poor families, whereas milk powder was the choice of families who were well off. These changes were not exactly beneficial to the infants, however. Apart from being denied the immunity-boosting nutrients found in human breast milk, the infants were also exposed to the risk of infection. Lack of knowledge in terms of the preparation of bottles and teats often resulted in abdominal pain and diarrhea.

The use of bottled milk to reduce the problem of malnutrition among infants led to the problem of improper feeding and preparation of milk bottles. The state medical report in 1904 found that most of the babies brought to hospital were admitted because of complications from diar-

rhea, which stemmed from both of these problems (Federated Malay States Annual Report of Selangor, 1904, p. 4). In Kuala Lumpur, the medical officers linked the high infant mortality rate in 1907, which involved 313 deaths per 1,000 births, to the consumption of sweetened condensed milk. This problem occurred not only in Selangor, but also in other Malay states. In Singapore, for example, one-third of the infant mortality rate was believed to result from the use of artificial milk and cow's milk that had been contaminated. The costly price of milk elevated the demand for artificial milk, which could be obtained at a lower price. Most of the branded milks such as Nestlé were sold at the price of $18.00/box (Musa, 2005, p. 101).

The Malay Humoral System

The Malay community historically practiced certain taboos and customs. This socio-cultural factor also caused the problem of malnutrition among mothers and infants. Customs, cultures and beliefs have historically influenced people's understanding of certain concepts, such as germs, disease, and food. For example, certain foods that promote muscle growth, such as fish, meat and poultry, were said to be "sharp" and to slow down the process of muscle recovery. Foods that can generate red blood cells, such as green vegetables and fruits, were said to be "cold" and to contribute to swollen veins and wombs. For the Malays, beliefs regarding food are a key aspect of their customs, which have significant influence on the nutritional status of mothers and infants in rural areas. Traditional views encouraged the prohibition of food deemed to be dangerous. For example, nutritious food-such as eggs and meat-was prohibited, even though this food is in fact needed, especially when women are pregnant or breastfeeding.

Traditional practices also prevented mothers from eating fruits and vegetables after childbirth, as these fruits were classified as "cold" food and thus the cause of swollen uteri and difficult sexual relationships. The permitted diet consisted of food from the "hot" category, which included rice, chili, coffee, and dried or baked fish, all of which contain few nutrients. Therefore, cases of anemia often occurred as a result of "confinement during childbirth," which is part of traditional practice (Wilson, 1973). These dietary practices conformed to the beliefs and ra-

tionales that all food embodies the two opposite qualities "cold" and "hot" (Tan, 1990, p. 40). Laderman (1983, p. 35) has discussed the Malay humoral theory, which is related to the intrinsic qualities of food, diseases, and treatments, in terms of "cold" and "hot." According to Laderman, the humoral theory was a strongly held belief which has influenced the dietary practices among Malays for centuries. However, we need to understand the factors behind these beliefs, since the Malays live in villages where there is an abundance of natural food for their consumption. This food can be considered a replacement for expensive vitamins and supplements, which are only available to people in urban areas. These people used their experience and knowledge regarding these natural foods in order to create "scientific" beliefs that food can help or harm their bodies depending on the "hot-ness" or "cold-ness" of the food. These beliefs were used as guidelines for treatments during pregnancy and after delivery.

Traditional Delivery

However, the tendency to practice traditional beliefs and customs relating to pregnancy, birth, and confinement among mothers in Selangor greatly influenced the mortality rate of this group. These tradition-oriented groups often lived in rural areas, far from the influence of socioeconomic development and communication. They complied with all the requirements of their traditions, even to the detriment of their own and their babies' health. The mothers' attitude, which always conformed to the views of their elder relatives, often caused delay in seeking treatment, which resulted in the death of many mothers and infants during emergencies. These situations occurred frequently among Malays in rural areas. Malay women's prejudice against Western medicine was seen as a contributing factor to the fact that this group made the fewest hospital visits, as shown in Table 9a, compared with other ethnicities in Table 9b.

Table 9a
Maternity cases in government hospital of Selangor from 1933 to 1939

Year	Number of cases	Cases that involved Malay women
1933	1,193	16
1934	1,306	52
1935	1,559	54
1936	1,664	70
1937	1,774	76
1938	2,688	82
1939	3,374	114

Source: Annual Report by the Health and Medical Department of Selangor (1933-1939)

Table 9b
Attendance of pregnant women at hospital for check up according to ethnics in Klang, 1933

Place/ Ethnicity	KLANG	
	First Visit	Total Attendance
Malay	1 394	5 684
Chinese	4 336	18 622
Indian	2 077	6 780
Others	310	2 604
Total	8 117	33 690

Source: Report of Health and Medical Department of Selangor 1933

The statistics show that pregnant Malay mothers preferred to deliver their babies at home rather than to receive treatment from government-trained midwives. It was common practice for pregnant women to endure their pregnancy without proper treatment. The appropriate action for confirmation of the fetus was an examination performed by a village midwife. Usually, the mother would undergo the ceremony of *melenggang perut*. This ceremony was a sort of sympathetic rite intended to facilitate the delivery of the baby when the time for confinement came, particularly if the expectant mother was pregnant with the first child. In addition, if pregnancy complications occurred, the midwives and shamans were the first to be solicited for advice (Laderman, 1991). Mothers would only go to a hospital for treatment when they could not see any

improvement. Therefore, it was clear that the mothers had strong faith in the midwives, as well as the traditional medical practices passed down through generations, in terms of ensuring a safe delivery (Mohd Ali, 1987, p. 33). This study found, however, that use of the services of untrained midwives was another cause of maternal and infant mortality.

For example, in the case of birth complications, midwives would tie a string in the upper abdomen to prevent the baby's head from "coming up." Another common practice performed by village midwives to assist in aiding birth complications was to push the mother's womb to expedite the process of birth. This action could be very dangerous because pushing on the womb could cause the rupture of the uterine opening and lead to severe bleeding, which would threaten the mother's life (Mohd Ali, 1987, p. 20). The death of the child in the womb and uterine rupture followed by maternal mortality were among the risks borne by the mother when such complications occurred. The lack of knowledge of antiseptic procedures could also contribute to bleeding during childbirth. Additionally, the various customs related to childbirth and childhood exposed the children to various diseases. The newborn babies' umbilical cords were often cut with bamboo, a sharp knife, or kitchen scissors by traditional midwives, and this usually caused the babies to suffer from infections. In addition to using unclean equipment to cut the babies' cords, these midwives also used various methods to dry the babies' navels. These included kohl powder (a kind of black ash made from iron and is used, especially by women, as a cosmetic to make up the eyes), black pepper or ashes taken from a wood stove. Such practices caused the babies' navels to be exposed to infections and abscesses. Serious infections could even lead to spinal problems. The babies would usually die within two to four weeks after birth because of this problem, but mothers would attribute the death to the babies' inability to breastfeed because of seizures. Seizures or 'convulsions' claimed the most infant deaths in 1932 and 1933, representing 49.2% and 48.8% of the total, respectively (Health and Medical Department, 1934, p. 26-27). Subscribing to this belief, most parents registered the death of their newborn babies as a result of "fever seizures," "pull," "child's disease," and "unable to breastfeed." (Mohd Ali, 1987, p. 11).

Races and Beliefs

Apart from the faith that the mothers had in village midwives, hospitals were often viewed as Christian and thus as not providing *halal* food for Muslim patients. Additionally, their location, which was often in the city, posed difficulties for family members, who would have to commute to the hospital and leave young children at home. Also, many doctors and hospital assistants consisted of men. This situation was unacceptable to local women; because of this, Malay women, as well as women of other ethnicities, preferred to deliver their children with traditional midwives in attendance. The same attitude was shown by Indian women. Despite the free treatment concessions given for cases of pregnancy and childbirth, specifically for estate laborers, the result was not encouraging. In 1920, a total of 240 cases were referred to the Kuala Lumpur General Hospital, which represented an increase of 66 cases compared with 1919. This number was very small compared with the number of estates in Kuala Lumpur. There were approximately 12 estates in Kuala Lumpur in 1920, and 40% of them were made up of female laborers (Labour Department of Selangor, 1925, p. 6-7). In contrast to the attitude of Malay and Indian women, many Chinese women chose to give birth in hospitals. Table 10 shows the number of maternity cases in the Chinese Maternity Hospital from 1931 to 1939.

Chinese women's exposure to modern treatments and medicines which were available in the government hospital in the city had become an advantage for them in that it helped them to realize the need for modern treatment and medicines. On the other hand, the Malay and Indian women staying in country villages were isolated from the knowledge of modern treatments and medicines. Their deficient knowledge of modern medicines and treatments had contributed to their attitudes of staying away from government hospitals in the city.

Table 10
Maternity cases in Chinese Maternity Hospital from 1933 to 1939

Year	In the hospital	Out of the hospital	Total
1933	2,275	218	2,493
1934	2,760	215	2,985
1935	3,264	185	3,449
1936	3,435	207	3,642
1937	-	-	3,983
1938	4,283	-	-
1939	4,542	-	-

Source: Annual Report of Chinese Maternity Hospital Kuala Lumpur 1933-1939

The table above shows the statistics of the total number of Chinese women seeking maternity care from trained doctors at recognized hospitals. Besides government hospitals, the Chinese Maternity Hospital and the Chinese Maternity Hospital Association were reckoned to provide a safer alternative for expectant mothers, compared to delivering the babies at home. Private maternity hospitals not only provided good service in taking care of the mothers after delivery but also provided training in midwifery. Mothers from the Chinese community were more fortunate, as these Chinese private hospitals not only provided good service, but also did so at a minimum charge. The majority of Chinese who lived in the urban areas by 1940 were more knowledgeable about delivery services provided at the hospitals. This was because they followed the example of European women, who sought mother and baby healthcare before and after delivery from qualified doctors in government and private hospitals. This situation did not occur among women who lived in the Malay and Indian villages on the estates.

Conclusion

This study found that the maternal and infantile mortality rate in Selangor during the Colonial Era in Malaya (1900 to 1940) was caused by various factors, including the unplanned system of urbanization that led to population congestion, lack of basic health facilities, poverty, lack of knowledge about healthcare, dietary practices during and after preg-

nancy and, finally, cultural practices that discouraged certain ethnicities from seeking modern treatment from maternity hospitals.

Although the government began to improve hospital infrastructure and services in Selangor, particularly in urban areas, after 1930, the services provided were not just focused on maternal and infant health, but also had to cater to the healthcare of laborers and workers as a whole. Thus, maternal and infant mortality still existed in high numbers, especially in villages. Therefore, location was a prominent aspect that affected maternal and infantile mortality rates in Selangor. This is entirely understandable because the primary objective of the British policy, which was to segregate the country's population based on the identification of ethnic peoples with certain occupations and living within certain residential areas, had indirectly affected patterns of pregnancy and maternal mortality in Selangor. Therefore, it is not surprising that Chinese infant deaths ranked the highest in areas classified as urban. The lack of attention given to the health of mothers and infants was obvious in the mid-1930s, when treatment centers were located only in main cities, and mothers and babies in rural areas and estates were not given any opportunity to benefit from health services. There is no doubt that the problem of poverty among mothers and babies who lived in rural areas and estates, which prevented them from benefiting from health facilities located in urban areas, also contributed to the high mortality rates, especially among Malays and Indians. Besides that, low level of education and distrust of Western medicine would have hindered them from seeking modern treatment even if the health services had been available in the rural areas. In addition, Muslim women who were doubtful about the halal status of food provided by the government hospitals during and after delivery were hindered in getting proper treatment in the hospital during the colonial era.

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