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SOCIAL INTERMEDIATION AND HEALTH TRANSITION

Lessons from Kerala

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Introduction

The history and experience of Kerala's health and demographic transitions provide a number of lessons to other states in India and to cher developing societies. They point out that it might be feasibe to bring about health and demographic transitions in such soceties within a single generation- in a period of about thirtyfive years - if an appropriate mix of social policies in conunction with the development of health infrastructure are implmented vigorously. The current health status of Kerala as indiated by levels of mortality rates or the length of life of its ppulation is more akin to those countries with much higher levelsof per capita income than with those of comparable levels of inome. The life expectancy in Kerala now exceeds 70 years; and female life expectancy of 72 years (compared to 68 years inChina) indeed speaks of the lack of any discrimination of femalechildren and the better status enjoyed by women in Kerala society. Kerala's infant mortality rate of 27 per thousand in 1989 is one of the lowest among developing countries. Very impressive gains have also been made in reducing the birth rate; the total fertility rate has already reached a figure of 2, and even lower in some parts, in 1989. This decline

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in birth rate is clearly reflected in the latest census of population, the decennial growth rate in Kerala being 13 percent compared to over 23 percent for India. Thus Kerala seems to have entered the path for the ultimate stabilisation of its population''' .

The present Kerala State came into existence only in November 1956, by merging the former princely states of Travancore and Cochin with the Malabar district ruled by the British prior to Independence. At the time of the formation of the Kerala state, the health status of the populations of these regions differed widely, Travancore and Cochin having much lower levels of mortality and higher life expectancies than in Malabar. Malabar lagged behind Travancore and Cochin not only in the provision of health infrastructure but also in the changes in the institutional, social and economic structures which were so important for this transformation. The significance of the Kerala experience lies in the fact that the implementation of the policies and programmes which succeeded in the princely states of Travancore and Cochin not only produced similar outcomes but these were also achieved within a much shorter time horizon in Malabar. It is this compression of the time horizon that provides the proof for the contention that it is possible to achieve health and demographic transitions in a society in the course of a single generation.

How did the health transition take place in Kerala? What were the social, institutional and economic forces that aided this transformation? What was the role of government in initiating and sustaining these proc sses? What lessons do they provide for other States in India? e propose to answer these questions in this paper in the c xt of the changes in the health profile of Kerala's pop ion and hope that the experiences and lessons of this tr rmation would provide some

guidelines for integrating health with development.

Social Intermedation and Health Transition

Caldwell defines health transition as a process that includes 'the social and behavioural changes which parallel the epidemiological transition and may do much to propel it'.(2) A number of earlier studies had pointed to the critical role of the government in providing access to health and of the importance of social and political changes in bringing about the health transformation in Kerala and these results are widely known.(3) Most of these studies, however, confined their analysis to the period since the formation of the Kerala state. But the epidemiological transition began much earlier in some parts of the present Kerala state, and therefore we confine our analysis largely to the period prior to the formation of the present Kerala state, in order to understand how the introduction of western medicine to this part of the country was initially received and what measures were taken for its spread. We shall present evidence here to indicate that the epidemiological transition probably would not have taken place in those parts within the then prevailing social and behavioural environment but for the initiation of a process of social intermediation in conjunction with the development of health infrastructure. Such evidence essentially is based on a comparative analysis of health development and its outcomes in Travancore and in Malabar. We have not specifically analysed the conditions in the Cochin state because the developments there closely followed the changes in Travancore. In this context we make a distinction between 'social and behavioural attitudes' and 'social and behavioural environment'. By social and behavioural environment we mean the prevailing set of social conditions governing the relationships within and between the different communities as determined by the distribution of land and other economic assets, the caste

structure and the gender attitudes. We are aware that social and behavioural attitudes have feedback relationships with the social and the behavioural environment, ultimately leading to irreversible social changes.

Through what we have termed 'social intermediation', Travancore attempted to change the social and behavioural attitudes under the existing social and behavioural environment aimed to make the Western health care system acceptable to a large segment of the population. In the context of health transition, we define social intermediation as interventions at different levels of the society by various agents to change the social and behavioural attitudes within the then prevailing social environment for achieving desired health outcomes for the society. Such interventions could be brought about either by enlightened public action or by responding to the articulation of popular demands from within certain groups who were actually denied access to, or the benefits of, the health care system. Initially these changes were brought about without disturbing either the traditional social and behavioural relationships or the social environment. Therefore the impact of social intermediation on health could be considered as equivalent to that of a selective social change. Later, with changes in the traditional social and behavioural attitudes, there was an acceleration in the speed of acceptance of Western medicine and this got articulated in a demand for greater access to health care.

The inflexibility of the social environment in the 19th. century was largely imposed by the rigidity of the caste system. Kerala was no exception to the caste system that was so powerful in the whole of India. In fact, the opration of the caste system was considered the severest in Kerala as it made even an additional division of 'unseeable' communities, not present

elsewhere in India, to distinguish them from the 'untouchable' communities.(4) There were also further sub-divisions within the 'untouchable' class, and their rights, entitlements and social standing were determined accordingly. The rigid caste structure combined with the practices, beliefs and customs associated with various illnesses erected not only a strong barrier against the acceptance and spread of Western medicine but also stood as a bulwark against any autonomous social and behavioural changes which might have aided its spread. Such social and attitudinal changes would have been considered as threats to the traditional caste society and its underlying power structure.

The concept of social intermediation has relevance beyond the health field and it was equally important in the spread of education in Travancore. We shall indicate later how education of the lower castes along with other economic changes altered the social environment itself whereby the attitudes of the lower castes began to change towards access to health, education and public employment.

In the early stages of health development, social intermediation was primarily concerned with changing the attitudes and behaviour of the upper castes and classes towards modern or western medicine. While these measures were basically initiated from the top(government), not all social intermediation processes originated at this level. For instance, demands for access to health care by the lower castes and classes began to assume some importance by the last decade of the 19th. century when the changes in the social environment mentioned above among the lower castes made them aware of the significance of modern health system for their well-being. The health sector had to respond to these pressures within the limits allowed by the prevailing caste and power structures. The contrasting developments in health in Travancore and Malabar would indicate

how powerful social and caste issues were and how the presence or absence of social intermediation in the two regions resulted in markedly differing outcomes. The analysis would also show that what was necessary and important was the fostering of an appropriate social environment for nurturing the health transformation.

Social intermediation proved to be important in a number of areas for the success of the health programme in Travancore: in spreading vaccination against small-pox, in integrating women with the health care system, in initiating changes in the attitudes of the population towardshealth and medicine and in providing access to the disadvantaged castes. We shall also indicate during our analysis below how the symbiotic links between education and social intermediation hastened these changes. On the other hand, the absence of social intermediation and the slow progress of education in Malabar basically resulted in slow and gradual improvements in health with a widening of the gap between the two regions.

Vaccination: A striking example of social intermediation was provided by the contrasting approaches to small-pox vaccination in Travancore and in Malabar. The British authorities were always concerned with the spread of infectious diseases like small-pox and cholera and their impact on the British army and civilian populations. Therefore, smallpox vaccination was introduced in Malabar in 1801,[5] five years after its discovery, but it could not achieve much progress at all. The popular Hindu belief attributed small pox to the wrath of Mariamman, an incarnation of Goddess Kali, and other than trying to please the Goddess, all other means to control the disease was considered futile.[6] Therefore, objections to vaccination came from almost all castes, in particular from the Nampoothri brahmins and Nairs, who constituted the upper caste elites.[7] They not only formed the

very pinnacle of the caste hierarchy but were also the landlords and leaders of their respective villages and thus came to influence and control the behaviour of the rest of the society. The following quotes from the Report of the Superintendent of vaccination for Malabar for the year 1853 throws a lot of light on this issue:

" A vaccinator.... ding himself of an inferior caste is looked down upon; distinction is much observed on this coast. I observed when in company with the vaccinator a native of high caste approaching us on the road, gave the usual alarm 'oh', the vaccinator, (a Thiyya) heeded the cry of alert, left me and went off the road some 20 or 30 yards. Other instances have been brought to my notice by several vaccinators that they are not allowed to enter the precints of a Brahmin village."

"Determinedly and unreasonably many are opposed to vaccination; no arguments are of avail, if pressed, the knife, the hatchet or the stick is threatened."(8)

These problems arose in Malabar because most of the vaccinators belonged to lower castes, especially the Thiyya community, who came into close contact with the British in the company towns, took to western education and became employees of the company. As pointed out in the above report of the Superintendent of Vaccination, the upper castes refused to be vaccinated by them; on the other hand, they, in turn, refused to vaccinate those below them (slave castes) in the caste hierarchy. Thus the whole vaccination programme in Malabar reached an impasse. Though there were repeated requests to appoint vaccinators from each caste, no actions were taken on these requests.

Travancore, on the other hand, followed a different path. When vaccination was introduced in 1813, it was the members of

the Royal family which got inoculated first, thus setting at rest all doubts and reservations on its usefulness.[9] Next all government officials and the inmates of prisons were inoculated. Since government employees at that time came exclusively from the upper castes, this very action enabled to overcome their objections to smallpox vaccination. The upper castes, however, refused to vaccinate the lower castes. In the early years, the lower castes received vaccinations from the missionary establishments.[10] Later lower caste vaccinators were appointed by the government.[11] The government also appointed much later Brahmin and Muslim women as vaccinators to overcome the resistance among them.[12] Thus a process of social intermediation in Travancore, which took into account the social, religious and caste considerations substantially helped the spread of vaccination at a much faster pace.

Another means of social intermediation was by making vaccination compulsory to school children. A proclamation issued by the Travancore Maharajah in 1878 made vaccination compulsory for all students in all schools including those receiving grant-in-aid from the state.[13] Most of the grant-in-aid schools were under the management of the Christian missionaries with students drawn from the backward castes. With the expansion in school enrolment which Travancore witnessed in the subsequent decades,[14] a greater proportion of children were brought under protection against small pox. In Malabar vaccination was made compulsory in 1879 in ``all government and aided schools in which English is taught,''[15] and it was extended to all schools only three years later.[16] But, Malabar had a slower rate of school enrolment,[17] and the number of children brought under the coverage of the prophylactic remained very low. Moreover, children of the untouchable castes remained almost wholly outside the educational system.

Women and Health care: A second instance of social intermediation relates to the measures taken to integrate women in the health care system. The major means for this was through the provision of health care facilities for children and women besides the vaccination programme. Another was recruitment of women for training in the health professions, which became possible in Travancore by the spread of female education.

Till the opening of the General Hospital in 1865, no special attention was paid to the health care of women. Within a year of its opening, a lying-in hospital was attached to it. In 1887, one medical school and a hospital for women were established at Quilon and these were placed under the charge of a female physician. In 1894-95, the lying-in hospital was separated from the General Hospital and was converted into an independent establishment with the co-operation of the 'Zenana Mission'.

As early as 1892, the Travancore government instituted scholarships for women to take up medical studies outside the state. In 1909, the first Kerala woman Ms. Mary Poonnen, a Syrian Christian, went to England to study medicine. In 1924, she became the first woman in India toHead a government department, as the Durbar Physician and Chief Medical Officer of Travancore, a post she held until 1942.'[18] By 1925-26, there were 13 qualified women in the State Medical Service of whom 2 held European degrees.'[19]

In 1869, the Travancoregovernment was able to induce eight young Nair women to undergo training as mid-wives.'[20] The choice of Nair women was obvious a the Dewan reported in that year " women of this caste may ente the houses of and attend upon those of the highest caste and threfore be generally useful".'[21] From 1886-87, regular training in mid-wifery was started at the Victoria Jubilee Medical Scool at Quilon. In 1894, six Nair

women volunteered for training as smallpox vaccinators.[23] By 1920, female vaccinators could be trained from among Brahmins and Muslims. By that year, there were 5 mid-wives attached to the different state hospitals.[23] Later women were trained as compounders and sick nurses too.[24]

The employment of female physicians and other female staff in the health services soon led to a weakening of the resistance by upper castes to the use of the health care system. Dr (Mrs) Yardley, the Superintendent of Women and Children's Hospital reported in 1905 that "the proportion of Brahmin women, among whom the prejudices were the strongest, who sought relief in the women and children's hospital became exceptionally high."[25] She also reported that women were willing to take up the risk of "three to four day's journey" to seek relief in the women and children's hospital at Trivandrum.[26] These measures again helped to raise the utilisation of the health care facilities in the state.

The story was quite different in Malabar. Not even a single female vaccinator was recruited though it was widely known that Muslim and Nampoothiri (Kerala brahmin) women would refuse to undergo vaccination given by men. Women from these communities also refused to get admitted to the hospitals where male inpatients were also admitted. The first women's hospital was established by the Basel Mission in Calicut in 1899 and only in 1905 the government opened hospitals for women at Calicut[27] and at Palghat. However, the Palghat hospital was closed down in 1909 on financial considerations.[28]

Education and Social Intermediation

Education, besides being an active instrument in bringing about changes in the social and behavioural attitudes not only

towards health and medicine but in overall relations within a society, had also a major role in indirectly fostering the social intermediation process. The changed attitude of the educated persons percolated down to the less informed and they became the role models for the rest of the society. The growth of education made it possible for Travancore to train a sufficient number of medical and paramedical personnel without whom the expansion in health care and the social intermediation process would not have been possible. This was most important in the case of women, for, elsewhere there was" considerble difficulty in procuring females for such (medical) work".[29] In Travancore, where the education of females improved at a rapid rate, women were successfully integrated into the modern health care system.

In analysing the role of education in the social intermediation process it would be worthwhile to make a distinction between schooling and education. For instance, the Nampoothiri Brahmins, the doinant superior caste, had their traditional arrangements for educating their children. While male members were given elementary education in 'Mutts'(centres of religious instruction), females were provided instruction within their own homes. Advanced learning in Sanskrit and in such subjects as astrology and medicine were imparted in the centres of higher learning attached to the Mutts. In spite of the high rates of literacy[30] that prevailed among them, they were 'the most potent' in resisting vaccination and western medical practices. The effect of formal schooling comes not from the curricula, but rather from the responses to the class room situation itself.[31] Childrenexposed to formal schooling and to better educated models like tachers not only gather awareness on matters such as personal hygene but institutional arrangements like compulsory vaccination of school children also gradually weakened the resistance to Western health care.

Modern education was introduced into Kerala in the first half of the nineteenth century and came on the heels of the introduction of the British system of administrative practices.[32] Travancore soon overtook Malabar in the spread of education and the differences widened in the second half of the nineteenth century.[33] The achievement of Travancore was conditioned by the changes that Travancore's economy underwent from the 1860's. The growth of plantations in the hills under European capital, the expansion of commercial agriculture in the plains under favourable conditions wrought by the global trade boom, and the tenancy reforms granting ownership rights to the Sircar tenants, significantly altered the economic conditions in the state and raised the demand for educated labour force. The state allowed significant public investment in education, not only by way of starting a number of government schools, but also by offering liberal grant-in-aid to private schools.

In Malabar the progress of education was stalled by an ch
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the assive system of land relations[34] and by the poverty and y to which the large body of tenants and agricultural fema urers were subjected to.[35] But, the major constraint in Musl bar arose from the delegation of the financing of elementary unc cation to the local fund boards.[36] A system of grant-in-aid al introduced as early as 1856 to promote elementary education the vernacular. But the policy was to bring the indigenous schools including the Muslim religious schools(the Madrassas) attached to the numerous mosques under the grant-in-aid system.[37] The imposition of fees was made a condition for the payment of grants to such schools,[38] and large number of poor people were thus precluded from sending their children to school. Also, these schools remained under their traditional masters who were untrained and unqualified as teachers.[39]

More than the expansion in public education it was the educational activities of Christian missionaries that decisively influenced the social intermediation process in Travancore. The missionaries found the establishment of schools and hospitals as the most effective means to achieve their goal of prosilytization.[40] The missionary operations in the field of education expanded under the liberal support of the State.[41] The missionary schools opened up the doors of education to the underprivileged and untouchables. By 1893, the various Christian denominations were running 879 schools. In Malabar, the missionary activity was confined to that of the Basel Evangelical Mission who opened only very limited number of schools.[42] Unlike in Travancore where the caste rigidities were maintained and protected by the state, in Malabar there was no state enforced rule which prevented the entry of the members of the inferior castes into schools or public places. But such rigidities were more social and cultural and were kept intact by the land relations. By 1898-99, the schools in Malabar had only 725 pupils from the castes of the untouchables (604 were boys and 121 were girls) which was put at 1.3 % of the Panchama population of school going age.[43] The missionaries were the pioneers in promoting female education too. Following their example, the Travancore government also began to encourage female education in the second half of the nineteenth century. The first government school for girls was started in 1859. In Malabar too schools for girls were established under the local boards but cultural factors forbade the women of such communities as Muslims and Nampoothiries from attending these schools. Thus, by 1897-98 only 6.3% of the girls of school going age were under schooling in Malabar.[44]

Thus education turned out to be a most potent instrument for social intermediation. In Travancore, the educational efforts of the government aided the social intermediation process among the

superior castes, while that of the missionaries encouraged the inferior and untouchable castes to demand social intermediation in their favour. In Malabar, the inertia on the part of the state coupled with cultural factors stalled even the educational progress of the superior castes. The tenurial relations and consequent immiserisation made schools inaccessible to the peasant population. Missionary efforts in the field of education was very limited and even though public schools were open to the untouchables they were prevented from attending by the strong caste barriers reinforced by the agrarian relations.

Social Access

The social environment in 19th century Travancore was such that the developments in public health care did not touch the lives of the lower castes. They were either denied access to or restricted from the use of public health care facilities. These lower castes constituted nearly fifty percent of the total population of Travancore in 1875. Even though a Royal Proclamation was issued in 1837 granting all men free access to public places, it remained as a proclamation only. However, the implementation of land reforms and the subsequent prosperity of the state provided some economic independence to the lower strata in the caste hierarchy.[45] Meanwhile with the establishment of missionary activities in southern Travancore access to education and health care became a reality for the lower castes living in that area. The London Missionary Society through their activities in education and health began large scale conversion of the lower castes to Christianity. In the first half of the nineteenth century, agrestic slavery was widespread in all regions of Kerala and conversion to Christianity not only provided an escape route but also a possibility for social and economic upliftment. From the 1850's there also began a conscious development of health care activities by the Christian missions.[46] The close

association of the lower castes with the missionaries instilled in them a sense of self confidence and made them aware of their social deprivation. Those who came out from the missionary schools found their caste status as a major obstacle to their material and social advancement.

The clamour for change came initially from the educated elites among the Ezhavas. In 1896 they submitted a mass Memorial signed by 13176 Ezhavas under the leadership of Dr.P. Palpu, demanding the admission of Ezhavas to the Sircar(Government) schools and for their appointment to public positions.[47] Incidentally, Dr.Palpu was a Licentiate in Medicine from the Madras Medical College, but had to seek employment in the Mysore State as he was denied appointment to the Travancore Medical Service on caste considerations. In this new awakening, the Ezhavas were inspired by the writings and teachings of Sri Narayana Guru, a spiritual leader and a social reformer belonging to the same community but universally respected. Sri Narayana Guru was fully aware of the importance of education not only for economic advancement, but also for changing the social and behavioural attitudes towards health and hygiene. In an address to the Pulayas, he made this significant statement: "Men are of one caste. There is no caste among them except the ups and downs in position. Some may be exceeding in wealth, education and hygiene; others may be short of them....there is no caste difference among men except these differences. The Pulayas are in dire need of wealth and education. These two have to be acquired. The most important is education. If it is gained wealth and hygiene will follow".[48]

This statement of Sri Narayana Guru quintessentially represented not only the relationships between society, education and health but also contained the seeds of the strategy for the development of the lower castes in Kerala. The Ezhava community began to raise funds from within their own community to establish schools

and colleges and as a result, now occupies a pre-eminent position in Kerala.

It was not only the Ezhavas who began to organise and agitate for access to education, health and public service, but also the Pulayas, a community of the erstwhile agrestic slave castes. When proposals were made in 1890 for opening a medical ward for Pulayas(untouchables) in the General Hospital at Trivandrum, the Durbar Physician objected thus: "I don't think it advisable to put up sheds especially for Pulayas in the locality, as it might keep brahmins away on account of caste considerations".[47] In 1892, Dr. Samuel, a medical evangelist of the London Missionary Society at their branch hospital at Kottarakkara, led a procession against Nairs of the locality for preventing backward castes "attacked with very bad Malaria" from using the road leading to the hospital.[48] The Durbar Physician, however, wrote to the Government in 1893 : " There is total want of shelter for the Pulayas who frequent the General Hospital for medicine during the monsoon. There is no place whatever for them, and during a heavy shower, they may remain under a tree.... I request the creation of a temporary Cadjan shed on 4 or 5 posts".[51] This was finally agreed to in 1894.

But the state of affairs did not change materially. In 1905, the Pulayas of Ulloor and Kannammoola, suburbs of Trivandrum, submitted a petition to the government seeking admission to the General Hospital.[52] In the same year,Dr.Yardley wrote of the dare need of admitting Pulaya women in the Women's and Children's Hospital. A disused kitchen farther removed from the main wards was finally converted into a ward for them.[53] In 1906, Mrs. Mary Poonnen, the Superintendent, reported that there were 20 beds reserved for Pulayas in the General Hospital, 12 for men and 8 for women.[54] In 1911, Mr. Govinda Pillai, a Nair, but representing the Pulayas in the legislative council of the state,

condemned the practice of throwing medicines at the Pulayas and demanded the opening of special wards for Pulayas in all the important hospitals in the State. Further, he also argued for the appointment of Pulayas as dressers and peons in such wards as they would be able to provide better nursing for their brethren.[55] These were agreed to and in the next year every hospital in the state was reported to have inpatient facilities for the Pulayas![56]

Articulation of public demands for access to and improvements in the health system through submission of Memorials to the government was a regular channel of communication. A large number of Memorials submitted to the Travancore government by the people from different localities prayed for the establishment of hospitals.[57] Most of such Memorials were prayers for the simultaneous establishment of schools and hospitals and the initiative came from the educated elites. Memorials were submitted towards the middle of the second decade of the twentieth century for conducting enquiry into such specific diseases as elephantiasis.[58] Individual letters and telegrams addressed to the Dewan (Prime Minister) seeking immediate intervention were sent on the outbreak of epidemics. Such letters included complaints about the inaction of the local revenue and medical authorities in checking the spread of epidemics.[59] Such popular actions date back to nearly a century in this part of the country and thus they preceded the mobilisation of the people for similar causes by any political movement. On the other hand, the political movements could draw on this experience for articulating public demands.

In contrast, the economy and society of Malabar remained almost static for most of the period during the British rule. The age-old restrictions imposed on the untouchable castes remained frozen by the prevailing land tenure system. The Census Report

for the year 1901 noted : ''The District contains 2,42,600 Cherumans, the members of which caste are nearly always farm servants retained for long terms. They are in fact attached to the land, and so to its owner,and were until recently-- and are perhaps even now --bought and sold like cattle''.[58] The situation remained unchanged even two decades after these observations were made. Mr.Gray, appointed by Madras Government to enquire into the conditions of the Panchamas in the Madras presidency observed in 1910: ''It is true that the Cheruma or Pulaya farm servant is in some cases still looked upon as a sort of slave and is sometimes even leased out to another land owner as a servant by his own master''.[61] Malabar lagged much behind Travancore in improving the social and economic conditions of these castes. Though demands were made under the National Movement from the 1930's for improving their conditions, their lot became better only after the initiation of land reforms in 1959 by the Kerala government. It was no wonder, therefore, that access to education and health were beyond the reach of these people in Malabar.

Differential Growth of Western Health Care

Western health care system took roots in Kerala from the beginning of 19th. century. It was first introduced in Malabar by the British and later in Travancore and Cochin. However, it became apparent soon that Malabar was lagging behind these Native States in health care expansion. These differentials were substantial at the time of the formation of the Kerala state.[62] As indicated above, there were major differences between Travancore and Malabar in their social approaches to health care. Travancore, by recognising the limitations of the existing social environment, was able to modify its policies and programmes through social intermediation while Malabar failed to make such adjustments. Moreover, the presence or absence of social

intermediation could not fully explain the differences in health outcomes between these two regions. Social intermediation becomes a vehicle of health transformation only if the necessary infrastructure is also brought into existence simultaneously. Therefore, it is important to enquire why the health infrastructure developments differed so widely in the two regions. We attribute these differences to three major factors: one, to differences in the objectives in expanding health care; two, to the limitations imposed by finances; and three, to the approach adopted to train health personnel.

Objectives of Health care: In British India, the major responsibility of the medical profession was to serve the colonial military and civilian personnel and protect them from the infectious diseases raging in the country at any time. The East India Company constituted the Indian Medical Service as early as 1764 for this purpose. Later, the western medical facilities were made available to the members of the ruling family, the landlords, the principal inhabitants, and 'government officials who were considered the agents and protectors of the colonial rule'.

Initially, the colonial government was concerned mainly with the strategies to deal with individual epidemics. When smallpox vaccination was introduced in Malabar in 1801 suitable 'rewards and encouragements' were offered to 'the natives who successfully practiced vaccination'.[43] At the beginning of the 19th. century, the colonial government appointed two District Surgeons, one for South Malabar and another for North Malabar and also three Assistant Surgeons, to look after the health of the military, jail and civilian establishments.[44] In a despatch dated 23rd November 1835 from the Government of India to the Government of Madras, it was made clear in unequivocal terms that "it is chiefly for the care of its armies that surgeons are sent

to India by the home government".[63] However, it was discovered soon that the objective of protecting the health of these privileged classes and groups would not be possible in the midst of a population continually exposed to the ravages of virulent infectious diseases such as cholera and small pox. Therefore, the first civil dispensery was established in Calicut in 1845 followed by another at the British territory of Cochin in 1850 and a third one at Tellicherry in 1853. These three towns were the important military and civilian stations in Malabar where British army and civilian papulations lived. For reasons to be indicated below, the expension in health intrastructure became very slow in Malabar.

In contrast, while the expansion of health care in Travancore and Cochin were slow to begin with, soon it overtook the developments in Malabar. As mentioned earlier, smallpox vaccination was introduced in Travancore only in 1813 but a public dispensary was opened in Trivandrum in 1819 with the appointment of a Durbar Physician. This dispensary was converted into a hospital in 1837 and another one was opened at Alleppy, the commercial and port town of Travancore. By 1860, Travancore had seven medical institutions run by the State. Even though the objective for the introduction of western medicine were the same as that of Malabar, in Travancore it was translated into practice. While opening the General Hospital at Trivandrum in 1863, the Maharajah declared: "One of the main objects of my ambition is to see that good medical aid is placed within the reach of all classes of my subjects. It is a blessing which is not at present in the power of individuals generally to secure how much so ever they may desire it. It is hence the obvious duty of the state to render its assistance in this direction".[64]

The differential in the expansion of health care between Malabar and Travancore continued to grow and by 1896-97,

Travancore had 34 beds per 100,000 population compared to 14 beds in Malabar. These differences persisted throughout the first half of this century, and in 1956-57, on the eve of the formation of the Kerala State, Malabar had exactly 34 beds per 100,00 population, thus falling behind Travancore by 60 years.

Financing of Health Care: The realisation that it would be impossible to protect the health of the British army and the civilian population without also taking care of the health of the community within which they lived, did not, however, materially alter the rate of expansion of medical facilities in Malabar region. An important factor was the difference in the financing of health care in Malabar compared to Travancore.

Though the British administration was in favour of expanding western medical care, it was almost made contingent on contributions by the local communities. Under the instruction of the Court of Directors of the East India Company, the construction of a building by the local inhabitants was made a precondition for the establishment of a hospital or a clinic.[67] Another despatch in 1860 directed that " only charges on account of European medicines and the services of a medical officer and subordinate should be borne by the state and every other item of expenditure should me met through local contributions".[68] These instructions were adhered to strictly, with the result that the dispensary at Malappuram, one among five which functioned in the district, was closed in 1863 for the reason that "the people of the district having done nothing towards its support"[69]. At the time of the formation of the integrated Kerala state, MNalappuram still remained the least developed district in the state in the matter of educational and health facilities.

With the passing of the Town Improvement and Local Funds Act of 1871, the extension of elementary education and health care

became the exclusive responsibility of the local funds and Municipal Boards. Besides, the local funds were to raise their own finances and did not receive any financial help from the Provincial government except the payment of the salary of medical officers belonging to the Indian Medical Service and the cost of maintenance of class I hospitals.[70] The only class I hospital in Malabar was the leprosy asylum and in 1879 there was only a single officer belonging to the Indian Medical Service in Malabar. The implications and results of this policy were quite apparent from the small number of medical institutions that existed in Malabar at the time of integration of the state.

Travancore, on the other hand, adopted a progressive approach towards the expansion of education and health care and this was facilitated by the relative autonomy that the State enjoyed from the 1860's. The Maharajah's 1865 statement was further articulated by the government and Sir T. Madhava Rao, Dewan of the state (Prime Minister) stated in 1870 that " It is the cherished aim of the Highness' Government to provide for every subject within a couple of hour's journey, the advantages of a doctor, a school-master, a judge, a magistrate, a registering officer and a post-master".[71] The implementation of this policy became a reality with the improvement in the finances of the government from the mid-1860s. For the next 50 years, with the exception of a few years, Travancore experienced surplus budgets because of the significant increase in its tax revenues. In 1862-63, Travancore's budgetary allocations for education and health were 0.58 and 0.39 per cent respectively. By the end of the century, in 1899-1900, these figures rose to 3.34 and 4.07 per cent respectively. In Malabar these expenditures were less than 2 per cent of the revenue of the district during this period.[72] In fact, during the first quarter of this century, the differential in expenditures on education and health between Travancore and Malabar widened further; Travancore was spending

nearly 15 per cent on education and about 5 per cent on health. These differences persisted till the formation of the unified state. These differences in expenditures were reflected in the levels of literacy rates, in mortality rates and in the overall health status of the populations between the two regions. The important fact was that the first phase of expansion in health care was possible in Travancore because the state took the direct responsibility for financing and was able to devote large proportion of government revenues for this purpose.

Training of Health Personnel: The expansion in health care would not have been possible in Travancore but for the training of a sufficient number of health personnel at various levels. Reference had already been made to the role of female health personnel in the social intermediation process. At the initial stages of health development, the objective was to train local personnel for paramedical jobs, midwifery, and vaccination. As early as 1869, one medical class was started in the General hospital to train medical subordinates for the outstation hospitals. But it was abolished in 1889 ''to provide for the admission of men trained in the Madras Medical College into the local service'',[77] and, in its place, was started a Compounder's class. Consequent on the introduction of grant-in-aid to private medical institutions, a school was started to train hospital assistants. Medical scholarships were instituted in 1902 to train candidates in the Madras Medical College or in the Medical School at Tanjore. By 1916-17, the State had 77 medical officers in the various State institutions.

The state was not the only agency to train health personnel in Travancore. As early as 1862, the London Missionary Society had established a Medical School at Neyyoor to train medical subordinates. All the branch hospitals under the Mission were placed under the personnel trained in this school. Later, when

the Salvation Army started their operations in Travancore in 1896, they also established their own Medical School.

Malabar had no medical training facility until 1917, and those who wanted to take up medical profession had to go to either Madras or Tanjore where medical education was provided for the whole Presidency. A Medical School was established at Calicut in 1917. The shortage of medical personnel was acute during times of epidemics and the state medical institutions in the affected areas had to be closed down to 'release' the medical personnel for 'epidemic work'.[74] By 1916 Malabar had only 29 midwives and only in 1917 a programme was started to train the indigenous midwives belonging to the barber community in the local hospitals.

Stages in Health transition

The pace of the health transition was quite different in Travancore and Malabar. By the beginning of the second decade of the 20th century health became socially accessible to all castes and classes in Travancore. In Malabar this was achieved only after independence. The social intermediation process turned out to be so powerful as to make the access to health care a popular demand in Travancore. A more active public health programme was undertaken from the 1920's with popular participation[75] which brought down the mortality rates significantly.[76] Thus Travncore entered the second stage of health transition by the beginning years of the 1920's. The mortality reduction in the second stage was made possible by the achievements of the first stage in health transition, which saw the development of the infrastructure, assured access to health to all communities, and trained a good number of medical and paramedical personnel from both sexes.[77] Malabar lagged behind Travancore in all these respects and the preparations for the second stage of the health

transition itself could begin only after independence.

In Travancore, the first phase lasted about hundred years, when the primary emphasis was on building up the health infrastructure and in curative medicine, followed by a second phase of over 50 years which recognised the importance of preventive measures. The first phase was basically a supply-oriented expansion in health care, but creating at the same time demand through a process of social intermediation. The second phase continued these trends, supplemented by public health measures, at an accelerated pace. In contrast, Malabar had a much longer first phase lasting over 150 years, but a very brief second phase of about 20 years which reduced the disparities in health infrastructure among the three regions. It was estimated that the infant mortality in Malabar was twice as high as it was in Travancore - Cochin at the time of its integration[78] but the rates converged in all regions within Kerala in the late 1980s.[79] Thus Malabar was enabled to join the other two regions in the third phase of the health transition almost together. This third phase in the health transition of Kerala, which is still continuing, is characterised by a demand-led expansion of the private health care system.

The Kerala experience, while differing in some respects, broadly agrees with the pattern postulated in the theoretical literature on epidemiological transition. Julio Frenk and co-authors state that " in the first place, the mortality decline that accompanies the start of the transition is selectively concentrated on infectious diseases, which thereby tend to be displaced by non-communicable diseases, injuries, and recognised mental illness. Second, the burden of death and diseases shifts from the younger to the older groups...The third direction is the change from a health picture dominated by mortality to one where morbidity is the predominant force"[80]. Kerala's health transition did not follow this contemplated pattern. The

differences in Kerala arose from the fact that there was generally less emphasis on preventive and public health measures and greater concentration on curative approach with the result that morbidity related to water and air-borne infections still dominate the health picture'[81] The implementation of public health measures began in the second stage, but the progress has been tardy. A very high proportion of the morbidity in Kerala can be traced to the lack of protected water supply and the absence of proper toilet facilities within households. As far back as 1881, William Logan emphasized the role of polluted water supply in promoting cholera among the poverty stricken Moplahs of Malabar[82]. A survey conducted by the Public Health department in 1948 in Travancore found that only 10 per cent of houses had latrines and that only 35 per cent had protected wells.[83] Even in 1983, only 9 percent of rural households and 48 percent of urban households had access to protected tap water; and, 60 percent in rural and 27 percent in urban areas did not have toilet facilities in their households.

Conclusion: Lessons from Kerala

What are the lessons of Kerala's health transition? Are they relevant for the current health situation in other states in India? Is the concept of social intermediation relevant or useful in the present social context? In raising these questions we are aware that the economic and social conditions in most states in India now are probably different from the conditions that prevailed in Travancore in the nineteenth century. However, these questions may still appear very pertinent for health development in some of the most backward states in India. Many of the factors involved in Kerala's health transition, such as the availability of health infrastrucure, the emphasis on maternal and child health , etc. are already known. Our analysis of the historical evolution of Kerala's health transformation, apart from

reinforcing the known findings, demonstrated how important was social policies and programmes without which the health transition would not have taken place.

The first and foremost lesson is that health transition is a complex process involving not only medical issues but also major economic and social questions. All these questions need to be answered while designing a health strategy.In this connection an important distinction is between supply and access to health care. Access is not always coterminous with supply of health care. Access implies locational, economic and social access; access also implies access to quality health care as opposed to the mere physical presence of a health care facility. While locational access was provided by positive public action, economic and social access became a reality only with changes in the basic social environment. In most states in India even locational access, let alone economic and social accesses, is beyond the majority of their populations as evidenced by the data on rural -urban distribution of health care facilities.

The Kerala experience also demonstrates that demand creation and 'right to access' are as important as the expansion in health care for health transition. Kerala's experience specifically demonstrated the role of social intermediation in these directions. In the early stages of the health transition, the most important was to bring changes in the social attitude to western medicine and health care. Given the social environment, this could be achieved only by means of properly designed acts of social interventions to overcome the social or psychological resistence and thus produce effects similar to a specific social or psychological change. Thus social intermediation was used as a device to shift continually the demand curve for health care to the right. We are not in a position to vouchsafe for the relevance of social intermediation at present in other states in

India. Nonetheless, we believe that an appropriate mix of social intermediation strategies would still be relevant in areas where caste rigidities and social stratification are still rampant. In any case, we might assert safely that the question of social access is still a critical factor in access to health in many backward states.

A major element in Kerala's health transition was the integration of women and women's health in the mainstream of health development. This is one area where the cultural and social factors erect the strongest barriers for the utilisation of health care. Travancore succeeded in breaking these barriers by resorting to various social intermediation measures. The rapid decline in infant mortality and in fertility rates since the formation of Kerala state must be attributed to the emphasis placed on child and maternal health and the intensification of programmes in these areas since then. High literacy rates and a long period of schooling of girls also contributed to hasten these changes. The establishment of separate women's and children's hospital manned by female health personnel is probably a first step in finding a solution to the problems of maternal and child health, at least in the initial stages of health development, in the backward states. In these states the female literacy rates are still below 20 percent and hence intensive efforts are also needed to raise literacy levels within a short period of time.

Another major indirect finding is the importance of preventive and public health measures not only in reducing morbidity and mortality rates. It is the poorest who are most affected by the lack of such means as safe drinking water and proper toilet facilities. Therefore the expansion of public health would not only turn out to a most cost-effective health measure in the long run but would also go a long way as an anti-

poverty measure.

Finally, for health transition, it is equally important to promote education and schooling along with the development of health infrastructure. Of all the instruments of social intermediation in Travancore the most powerful was, perhaps, education. Education made all the difference to one's understanding of the environment and to one's realisation of the power of collective action. Ultimately, lasting changes in cultural and social values and attitudes occur only through education and hence any process of health transition would be incomplete without improvements in education. Education also facilitates the training of the medical and para medical personnel from within the region. Health and education should be treated as complementary and they should be developed simultaneously. If none else, the importance of education for health transition would still be the message of Kerala to the rest of the developing world.

Notes

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1. Government of Kerala, Sample Registration Kerala Rural, Annual Report 1988, Number 26, (Thiruvananthapuram, Department of Economics and Statistics, 1990).

2. John.C. Caldwell, Introductory Thoughts on Health Transition. in John Caldwell, Sally Findley, Pat Caldwell, Gigi Santow, Wendy Cosford, Jennifer Braid and Daphne Broers-Freeman , eds.What We Know About Health Transition,Vol.1, (Health Transition Centre ,The Australian National University, 1990)p.11.

3. See, United Nations,Poverty Unemployment and Development Policy: A Case Study of Selected Issues With Reference to Kerala,(New York,1975), P.G.K.Panikar and C.R.Soman, Health Status of Kerala: The Paradox of Economic Backwardness and Health Development (Trivandrum, Centre for Development Studies,1984), Moni Nag,Political Awareness as a Factor in Accessibility of Health Services, Economic and Political Weekly, 24, 1989, pp.417-424.

4. L.A.Krishna Iyer, Social History of Kerala, Vol.2, (Madras, Book Centre Publication,1970) p.46.

5. C.A. Innes, Madras District Gazetteers, Malabar, (Madras, 1951) p. 292.

6. "The Hindus who constitute the great mass of the population generally look upon this disease as a special manifestation of the power of their deities and look upon any attempt to control the course of it as little less than impious.It is with the greatest difficulty ,and that too in comparatively few cases they can be got to submit even to disinfection.'' Travancore Administration Report for the Year 1871, Quoted in V.Nagam Aiya, Travancore State Manual, Vol.2, (Trivandrum, 1906) p.507

7. The Superintendent of Vaccination for Malabar noted: "Brahmins and Nairs are the chief in refusing to be operated on and being generally influential they command considerable influence.'' Report on Vaccination in The Madras Presidency for the Year 1874-75, (Government of Madras,1876) p.6

8. Government of Madras, Selections from the Records of The Madras Presidency : Report on Vaccination for the Year 1858, (Madras,1858) pp.6-8 .

9. Report on the Administration of Travancore for the year 1929-30, (Trivandrum, 1931), p.172.

10 For instance, between 1861 and 1868 alone , 11000 individuals were vaccinated in the different medical institutions under the London Missionary Society . See, Ariane Yechouron, History of Medicine and Public Health in Kerala, (Unpublished B.A Thesis, Harvard University, Cambridge, Mass., 1980) p.72. Since the Mission's operations were mainly focussed on the inferior and untouchable castes most of them would have come from such castes.

11. The appointment of Pulayas as vaccinators was the only exception to the general rule which prevented their entry into the state service and they were appointed specifically to vaccinate the hill tribes and untouchables. See, Cover File Number 15769, 1869 and 1872, (Kerala State Archives, Trivandrum). In like manner, vaccinators were appointed from among the Muslims and Malayali Brahmins to promote vaccination among these communities. See, Cover File Number 2728, 1896, (Kerala State Archives,Trivandrum).

12. Report on the Administration of Travancore for the Year 1920-21, (Trivandrum, 1921).

13. Cover File Number 201,1879, (Kerala State Archives, Trivandrum).

14. For details on the expansion in the number of schools and in enrolment, see , P.R.Gopinathan Nair, Education and Socio Economic Change in Kerala, 1793-1947, Social Scientist, Vol.4, Number 8, 1976, pp. 28-43, P.R.Gopinathan Nair, Educational Reforms in India: Universalisation of Primary Education in Kerala, Working Paper Number 181, Centre for Development Studies, Trivandrum, 1983, P.K.Michael Tharakan, Socio Economic Factors in Educational Development: The Case of Nineteenth Century Travancore, Working Paper Number 190, Centre for Development Studies, Trivandrum, 1984.

15. Report on Public Instruction in The Madras Presidency for the Year 1879-80, (Madras, 1881).

16. Report on Public Instruction in The Madras Presidency for the Year 1882-83, (Madras, 1883).

17. See, P.R. Gopinathan Nair, 1976, Cited in Note 13.

18. Robin Jeffrey, Governments and Cultures: How Women Made Kerala Literate , Pacific Affairs, Vol.60, Number 3, Fall 1987, ppp.447-72.

19. Report on the Administration of Travancore for the year 1928-29, (Trivandrum,1929).

20. Cover File Number, 369, 1869, (Kerala State Archives, Trivandrum).

21. Report on The Administration of Travancore for the Year 1869-70, (Trivandrum, 1970).

22. Cover File Number, 2698, 1894-97, (Kerala State Archives Trivandrum).

23. Report on The Administration of Travancore for the Year 1919-20, (Trivandrum, 1920).

24. From 1895, females were admitted to the Compounder,s class. In 1901 a separate class was started for training female compounders. In 1906, the Sisters of the Holly Cross , a group of Swiss Medical Missionaries , started nursing services and in 1920-21 was started a class for training nurses of local origin. (see, Reports on The Administration of Travancore for the corresponding years).

25. File Number 264, General, 1906, (Kerala State Archives, Trivandrum).

26. File Number 1015, General, 1905, (Kerala State Archives, Trivandrum) .

27. This was started with the financial help from Sir. Ramaswamy Mudaliar. Innes, cited in Note 4, p 290.

28. Annual Returns of the Civil Hospitals and Dispensaries in the Madras Presidency for the Year 1909, (Madras, 1910.)

29. Cover File Number 2698, 1894, (Kerala State Archives Trivandrum).

30. Population and rate of literacy in 1901

	Population		Literacy	
	Travancore	Malabar	Travancore	Malabar
Nampoothiri	9475	17285	44.60	44.73
Nair	520941	371110	21.64	24.38
Ezhava/Thiyyan	491774	660608	7.30	7.46
Pulayan/Cheruman	206503	241390	0.17	0.12
Muslim/Moplah	194566	832978	8.66	4.61
Christians	697357	51493	15.75	28.65
ALL	2952157	2790281	12.36	10.00

Source: Census of India, 1901, Vol.XV, Madras ; Census of India, 1901, Vol. XXVI , Travancore

31. David Mechanic, Research Possibilities on Facilitating The Health Care Transition, in L.C.Chen, A.M. Kleinman, J.Potter, N.C.Ware (eds.), Advancing Health in Developing Countries : The Role of Social Research, forthcoming from Auburn House Publishing Company, Westport, CT.

32. Tharakan, Cited in Note 13.

33. Gopinathan Nair, Cited in Note 13 .

34. For details on the land tenures in the two regions, see, T.C. Varghese, Agrarian Change and Economic Consequences, (Calcutta, Allied Publishers, 1970). Also see, K.N.Panikkar, Against Lord and State, (Delhi, Oxford University Press, 1989).

35. A deputation of the Moplahs of Ernad submitted before Lord Ampthill in 1901,"In a poverty stricken community like ours, where the wages of labour are less than a trifle, every child has to help to bring grist to the parental mill, and every child removed from the field and sent to school represents a dead loss to the family, so that Mappila parents cannot be persuaded to keep their children at school after these have attained an earning age. The vision of future greatness for the child is obscured by the thick cloud of present poverty.", Govt. of Madras, The Third Tour of His Excellency Lord Ampthill G.C.I.E in the Madras Presidency: Extracts from the Madras Mail, (Madras, Superintendent, Government Press, 1901) p. 124.

36. The Local Fund Boards which were formed in 1871 consequent on the Decentralisation Resolution of Lord Mayo were responsible for the development of village roads,

choultries, markets, extension of medical facilities, health, sanitation and elementary education. The Decentralisation Scheme was adopted as a measure to introduce sanitary reforms consequent on the recommendation of the Royal Commission (1859) appointed to enquire into the health of the army in India. Up to 1908 the whole expenditure on elementary education, including the payment of grants to private schools were charges on the local funds. In 1908 it was decided to pay such grants from the provincial funds. G.O.Number 1547 L, dated 18th November, 1908, Local Department, (Tamil Nadu Archives).

37. "The policy ever since the constitution of the department has been to improve the existing system of indigenous schools and to aid them under the result system as soon as the managers who are in most cases the masters conform sufficiently to the rule of the grant in aid code.' Between 1881 and 1886 alone 380 indigenous schools were brought under the system. Report on Public Instruction in the Madras Presidency for the Year 1885-86, (Madras,1886) p.113.

38. Report on the Administration of the Madras Presidency for the Year 1863-64, (Madras,1864). Traditionally the expenditure on such schools were met by the local communities,but there was no imposition of regular fees. In Travancore elementary education was made completely free in 1896.

39. ''of the 2545 teachers employed in the schools 977 possessed teacher's certificates , 490 were otherwise unqualified and 1278 were entirely unqualified..... Besides these as many as 130 teachers were Mullahs teaching in the Board and aided Moplah schools.'' G.O. Number 1605, L, 21st September 1901, Local, Administration Report of the Malabar District Board, (Tamil Nadu Archives).

40. Discussing the intentions of the Missionaries in starting hospitals ,Dr.Somerwell,a doctor of the London Missionary Society who was the chief surgeon in the Head Quarter Hospital at Neyyoor wrote,''Perhaps,he (the early missionary) talked to himself..... 'these poor souls are going to hell ,and I have the knowledge that alone can save them.But they don't come and listen .How can I attract them? I know what- I'll start doing medical work,and they will come for the medicine and get the gospel as well.'' T. Howard Somerwell, Life and Knife in India: The Story of A Surgical Missionary at Neyyoor, (London, Livingstone Press, 1955) p.11 .

41. See, Tharakan, cited in Note 13.

42. By 1907,the B.E.M had 34 schools with a student strength of only 3488. The Sixty Eigth Report of the Basel German Evangelical Mission in South-Western India for the Year 1907, (Mangalore, 1907) pp.16-17.

43. Report on Public Instruction in the Madras Presidency for the year 1898-99, (Madras, 1899).

44. Report on Public Instruction in the Madras Presidency for the Year 1897-98,(Madras,1898).

45. While the expansion of commercial agriculture and the trade boom improved the economic position of the Ezhavas, the diversification of the economy provided new opportunities to the erstwhile slave castes. See, Robin Jeffrey, Decline of Nair Dominance, (Delhi, Vikas Publishing House, 1976).

46. The L.M.S started the South Travancore Medical Mission in 1838. But the first Mission hospital was established around 1854. By 1909 the Mission had, besides the Neyyoor hospital,10 branch hospitals, 8 branch dispensaries and two leper asylums under its management. By this year the number of patients reached as high as 97766. File Number 677, General, 1912 (State Archives, Trivandrum).

47. For the Memorial and responses to it see, Cover File Number 1231, 1896, (State Archives,Trivandrum).

48. Quoted in C.R.Mitra , Sree Narayana Guru and Social Revolution, (Shertallai, 1979) p.195.

49. Cover file Number, 3181, 1894 (State Archives,Trivandrum)

50. Howard Somerwell, cited in Note 39, p.134.

51. Cover file Number 3181, 1894 (State Archives,Trivandrum.)

52. File Number 875, General, 1905 (State Archives Trivandrum)

53. File Number 264, General, 1906, (State Archives,Trivandrum)

54. File Number 264, General, 1906, (State Archives,Trivandrum)

55. Quoted in T.H.P.Chentarassseri, Ayyankali (in Malayalam), (Trivandrum, Prabhat Publishing House,1985) pp.43-44.

56. File Number 579, General, 1912, State Archives,Trivandrum)

57. See, Cover file Number 3975, 1898, File Number 684, General, 1912, File Number 160, General, 1914, File Number 2476-11/3, General, 1914, File No.VII-13, General 1916, File No.3427/1-17, General 1918. (State Archives, Trivandrum).

58. File No. VII-13, General. 1916 (State Archives, Trivandrum)

59. See, File VII-8, General, 1918 (State Archives, Trivandrum)

60. Census of India, 1901, Vol.XV, Madras, Part 1, Report, p.193

61. G.O.Number 2941, Revenue, Dated 12th August, 1918, (Tamil Nadu Archives).

62. United Nations, Cited in Note 2, pp.133-145.

63. Innes, cited in Note 4.

64. Innes, cited in Note 62.

65. Despatch Number 364, 23rd November, 1855, Military (Regional Archives,Calicut).

66. Nagam Aiya, cited in Note 5.

67. Despatch Number 25, Dated 6th July, 1853, Quoted in Report on Civil Dispensaries in the Madras Presidency for the Year 1853, Madras, P.36.

68. Despatch dated 19th February, 1860, Quoted in Report on Civil Dispensaries in The Madras Presidency for The Year, 1862.

69. Report on Civil Dispensaries in The Madras Presidency for the Year 1863, p.3

70. Towards the close of the century the hospitals for women in the Presidency were provincialised. In 1913, it was decided to pay a fixed contribution of ten percent of the salary and allowances of the medical subordinates employed in local fund institutions.(G.O.Number 63 L, Local, dated 8-1-1914, Tamil Nadu Archives.) Later in 1915,the government undertook to bear half the cost of new institutions started by local bodies.

71. Report on The Administration of Travancore for The Year 1869-70, p. 117.

72. In this context revenue has been taken in a very limited sense and includes only the taxes and other direct revenue. The total revenue has been taken as the sum total of the provincial municipal and local board collections after making allowances for interagency flows, but excludes school fees, contributions and endowments.

73. Nagam Aiya, cited in Note, p.339.

74. See, Current File Number 425 L, Dated 12th March, 1913, Local Department, (Tamil Nadu Archives).

75. See, Yechouron, cited in Note 10.

76. Based on statistics collected from the municipal towns, the sanitory commissioner estimated the IMR as 250 per 1,000 live births for the year 1920-21. See,Letter from the Sanitory Commissioner to the Government, dated ?-11-1921, Travancore Legislative Council Proceedings, Vol. No.11, pp.236-238. According to the vital stastistics enquiry conducted along with the census of 1941, the I.M.R. was only 127 per 1000 live births. See, Census of India, 1941, Vol.XXV, Travancore, Part 1, (Trivandrum,1942),p.192.

77. Yechouron, cited in Note 10.

78. United Nations, cited in Note 2.

79. T.N.Krishnan, Kerala's Health Transition - Facts and Factors, (Trivandrum, September, 1991).

80. Julio Frenke et.al, Elements for a Theory of The Health Transition, Health Transition Review, Vol.1, No.1, (1991).

81. T.N.Krishnan, cited in Note 79.

82. William Logan, Malabar,(1887,Reprinted by Asian Educational Service, New Delhi,1989)p.216

83. See N. Krishnan Tampi, Public Health in Travancore, in Travancore Information and Listener, June 1949.

Appendix - Tables

Table 1

Population and Literacy, Travancore and Malabar

Year	Population (In Lakhs)		Rate of Literacy (percentages)					
	Travancore	Malabar	Travancore			Malabar		
			Male	Female	Total	Male	Female	Total
1901	29.52	28.01	21.47	3.07	12.36	17.24	3.03	10.05
1911	34.29	30.21	24.78	4.95	14.96	18.98	3.47	11.10
1921	40.06	31.05	33.07	15.00	24.17	20.85	4.90	12.68
1931	50.96	35.34	33.77	13.90	23.90	22.90	6.40	14.65
1941	60.70	N.A	50.19	36.12	47.10	N.A	N.A	N.A
1951	92.80	47.58	54.78	36.97	45.83	41.00	21.00	31.00
1961	107.30	61.74	57.80	44.45	51.17	49.83	29.39	39.61
1971	133.34	80.13	70.39	60.44	65.39	60.31	44.17	52.24
1981	154.04	100.50	78.90	71.20	75.05	69.79	57.39	63.58
1991	169.42	120.69	83.21	78.67	80.94	77.76	70.72	74.20

Note: The information in columns 2, 4, 5 and 6 for the period 1951 to 1991 relate to Travancore - Cochin and those in the last four rows are based on district aggregates.

Source: Census of India , Relevant Years.

Table - 2.
Hospital Beds per 1,00,000 Population*
Travancore and Malabar

Year	Travancore	Malabar
1891	N.A	12.59
1896-97	34.00	14.00
1901	34.75	14.92
1906	47.00	15.94
1910	N.A	16.28
1921	41.00	22.90
1931	N.A	23.74
1951	67.00	28.74
1956-57	78.00	34.00
1960-61	94.00	49.00
1970-71	117.00	76.00
1980-81	144.18	89.55
1990-91	142.71	98.42

*Govt.Institutions only

Source: 1. Reports on the Administration of Travancore for various years

2. Annual Returns of the Civil Hospitals and Dispensaries in the Madras Presidency for various years

3. United nations, 1975, Poverty , Unemployment and Development Policy, Newyork, Chapt. X.

4. Statistics for Planning, 1993 , State Planning Board, Trivandrum.

5. Economic Review, 1991, State Planning Board, Trivandrum.

Table 3

General and Infant Mortality Rates, Travancore and Malabar

Year	General Mortality Rate per 1000 population		Infant Mortality Rate per 1000 live births	
	Travancore	Malabar	Travancore	Malabar
1930	20.00	N.A	120.00	210.00
1941	15.00	N.A	127.00	N.A
1956-57	12.00	23.00	N.A	N.A
1970-71	7.90	10.40	N.A	N.A
1977	6.64	8.39	N.A	N.A
1983	6.18	7.19	31.20	46.20
1987	6.10	6.10	26.00	28.10
1988	6.30	6.20	30.90	29.00

Note: Data in columns 2 and 4 for 1956-57 to 1988 relate to Travancore-Cochin

Source: 1. United Nations, Poverty Unemployment and Development Policy, 1975, Chapt.X.

2. Sample Registration, Kerala Rural, Annual Reports for the Years 1977, 1983, 1987 and 1988, Department of Economics and Statistics, Government of Kerala.