

Viabale Socio-Economic Factors behind Existing Infant Mortality Tendencies in Sri Lanka: A Sociological Study

Arachchige Sarath Ananda

Abstract: *Granting biological factors are predominant of infant mortality cases yet, socio-economic and environmental aspects such as economic credibility to reach individual nutritious level, attitude towards food and health care and environmental contamination that creates background causes cannot be underestimated. This research is about socio-economic factors that would be possible to current infant mortality trends in Sri Lanka. While using secondary literature making its conceptual framework, the analysis of this research is contingent on both quantitative and qualitative features. The primary data was generated by structural interviewing 100 mothers of dead infants belongs to five distinct districts in Sri Lanka. Each and every case including visual data extracted by personal observations were recorded separately. As emphasizing major findings, this research suggests household income disparity, high rate of women unemployment, lower level of infrastructure of rural and estate sectors particularly push many families towards various preconditions that to be caused infant deaths. Moreover, it shows the poverty is still predominant that lead mainly women to early school dropping, under age marriages, family breaks, malnutrition and many other related consequences. Even though, Sri Lanka claims for an esteemed position of minimizing her infant mortality rates even from 1950s, this research highly recommends the augment of infrastructure of remote areas, development the accessibility of alternative income generating activities and uplifting educational capacity of bottom line of the society is excessively needed perpetuating the glory.*

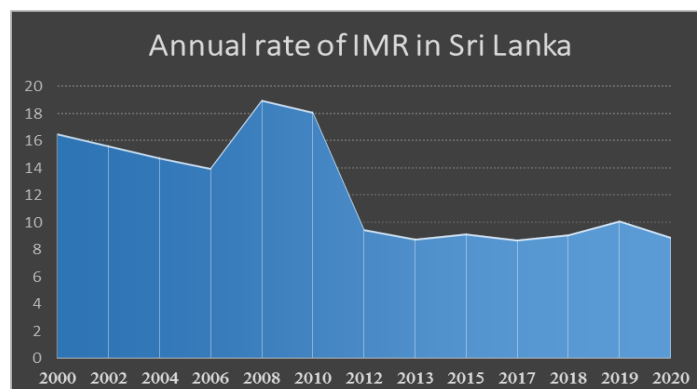
Keywords: Infant Mortality Sri Lanka, Poverty, Socio-cultural Factors

1. Background of the Study

Infant mortality rate (IMR) has been identified as a salient index to measure development trend in a country even from the stand point of introducing development indicators (Stanton 2007). It tends to be an appropriate scale which reflects all aspects such as, social, cultural and economic developments of an assumed nation. As a developing state, Sri Lanka has shown a considerable progress in reducing infant mortality rates within recent past as a result of widening the capacity of welfare-based health care facilities island wide. The current progress of decreasing infant mortality rate is not a short term achievement indeed, but a result of a gradual and continuous process for decades. Sri Lanka has demonstrated its social indicators more forwardly within the South Asian region even from the 1950s, and more certainly this success may be quite equal to the middle-developed regions (UNHDI, 2020). However, Sri Lanka has to maintain current achievements and find further innovations to perpetuate its accomplishment and attain the level of infant mortality rates which has been acquired by many developed nations. Therefore, with emphasize of more

researches to evaluate this situation our current bidding is to make a socio-economic overview on infant mortality cases in Sri Lanka. It would be accommodating the fulfillment of academic needs and widening the concurrent development discourse of the Island.

Sri Lanka tends to have achieved a considerable attainment in terms of reducing its IMRs from the colonial period. In 1940s many provinces of Sri Lanka indicated sometimes more than, 100-150 infant mortality cases per 1000 live births showing the dark history of human resource development, which would be common to all parts of the world (DCS, 1976). However, Sri Lanka has succeeded in reducing IMR at least down to 30-40 level within half century (Ibid). When considering more recent indicators, Sri Lanka has exhibited supplementary progress representing less than nine infant mortality cases per 1000 live-births nationwide in 2020 (Graph 1). These figures reflect all aspects of continuous socio-economic development of the Island.



Graph 1: IMR in Sri Lanka from 2000 to 2020

Volume 10 Issue 12, December 2021

www.ijsr.net

Licensed Under Creative Commons Attribution CC BY

Source: CIA World Fact book-Unless otherwise noted, information in this page is accurate as of January 1, 2011.

Norton, M (2005). "New evidence on birth spacing: promising findings for improving newborn, infant, child, and maternal health". *International Journal of Gynecology & Obstetrics*89: S1–S6.

eRHMS 2021-FHB, Register Generals' Department, <http://fhb.health.gov.lk/index.php/en/statistics>

The United Nations Development Assistance Framework (UNDAF) predicts about the possibilities of reducing national IMR to 4.0 in 2016 (UNDAF 2013-2016, Colombo (Oct.) 2012). However, the attainment this goal could have been greater challenge considering to variations of infrastructural facilities available in different geographical locations and widening of the gap of income distribution among certain social stratus of the Island. For instance, whereas some districts such as Gampaha (4.6), Kalutara (5.6), Kilinochchi (1.5), Mannar (1.6) report comparatively lower rates of IMR, some other districts such as Colombo (15.1), Kandy (13.7), Vavunia (35.8), Mullativu (25.1) account for higher rates in 2009 (DCS 2014). On the one hand, these figures make a doubt among us on how some developed districts such as Colombo and Kandy show such a high figures of IMR compare to national level despite other low facilitated districts such as Kilinochchi and Mannar report considerable lower rates. On the other hand, certain middle ranged developed districts like Kurunegala (9.6), Ratnapura (6.9) demonstrate average levels of IMR in the same year (Ibid). Therefore, these figures illustrate the need of further in-depth investigations on particular subject, that to be revealing background factors determined regional disparities of infant mortality cases of Sri Lanka.

2. Conceptual Framework

In general, infant mortality is known as the death of a child, less than one year of age. IMR is being counted as the number of death of children less than one year of age per 1000 live births. This can be estimated in counting the number of children died under one year of age in a given region, divided by the number of live births, multiply by 1000 (Andrews, K. M. et al.2008). Infant mortality may be classified into different forms, such as neonatal, post neonatal and perinatal. Neonatal mortality is new born death which occurs within 28 days postpartum. The cause of neonatal death is identified as the results of inadequate access to basic medical care. Postnatal mortality considers the death of children aged 29 days to one year. Malnutrition, infectious diseases and contaminated home environment are known as contributes to the majority of postnatal infant mortality cases. Perinatal mortality is late fatal death which may occur after 22 weeks of gestation to birth, or death of a newborn up to one week of postpartum (Bolt, 1921; Cramer, 1987).

Biological or medical studies of infant mortality tend to be curtailed to demonstrate an emphasis on ecological, health factors and scales of individual nutritious level. Many studies have proven that malnutrition, incompleteness of biological needs and consumption of contaminated items are causes of infant mortalities (Biroliya & Fink, 2018; Baraki et al.2020). However, identifying sociological factors that responsible background motive sought not to be underestimated in terms of its role in scrutinizing their effect in the grassroots level of the society. In particular, sociologists pay attention on socio-cultural and economic

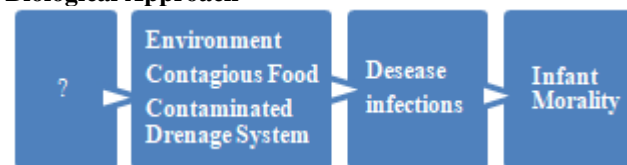
factors such as the symptoms of medical and biological outcomes. According to some studies, the factors such as cultural, environmental, social and behavioral have shown a considerable effect on the determinants of IMR (Butz et al., 1982; Masuy-Stroobant, 2001). These dynamics may be rather significant today considering to development of modern technologies and possibility of exposure to them in all regions. For instance, organic water pollution is a better indicator of infant mortality than health expenditures per capita. Water contaminated with various pathogens a host of micro biotical infections. People, who live in areas, where particular matter air pollution is higher, tend to have extra health problems across the world. Short-term and long-term effects of ambient air pollution are associated with an increased mortality rate, including infant mortality. Air pollution is consistently associated with post neonatal mortality due to respiratory effects and sudden infant death syndrome. Moreover, the cultural believes of the society (particularly of parents), such as food, deceases, medicine, and child caring etc. may also be determining factors of infant mortality cases in certain levels of the society.

In view of the fact that the existence of limitations of both biological and social approaches of infant mortality studies, this research was in attempting to moderate issues amidst these two disciplinary. Some have attempted to formulate these limitations and boundaries into different models. For instance, Mosley and Chen (1988) have endeavored to show the distinguishing of both sociological and medical or biological approaches of infant mortality.

Sociological Approach



Biological Approach



Graph 2: Sociological Vs. Biological Approaches of Infant Mortality

As Graph present research tries to portray the significant empirical vacuum of sociological approach and the cause-effect disintegration of the biological approach. In this ground, general limitations of sociological approaches on studying infant mortality has been taken into account. The empathetic interdisciplinary integration and their long-term intervention may be the only solution to overcome ever-standing issues of the perfection of infant mortality studies. With broader understanding of the context, this study has been focused on building a sociological discourse based on current literature of infant mortality and primary data

collected from different geographical destinations in Sri Lanka. As a solitary-disciplinary approach this research may also have the same inherent limitation, it may be loyal getting impression of certain aspects of infant mortalities including economic status of households, geographical and sociological factors such as educational status of mothers who accompanied with infant mortality cases, income statuses of households, accessibility of other infrastructures such as sanitary facilities and transportation.

3. Methodology

The basic conceptions and background construction of this research has been covered entirely depending on the secondary literature in both quantitative and qualitative forms collected by governmental and non-governmental organizations such as Central Bank Reports, Department of Census and Statistics data, World Bank Annual Reports etc., and scholarly sources presented by intellectuals in the particular field. Selected case studies were conducted considering infant mortality occurrences, which has been reported from 2018 onward. Cluster based, purposive sample has been selected from different AGA divisions possessed by different districts which vary in geographically and demographically, such as Ratnapura, Nuwara Eliya, Badulla, Hambantota and Colombo. When, classifying researchable locations of GN Divisions of each district, grassroots-level studies has been conducted covering all reachable household (HH) addresses, in which infant mortality cases were reported¹. The mother and other family members of the dead infants were taken as respondents of structured interviews. Especially mothers of dead infants were interviewed as key informants. Three major data collecting techniques such as case studies, structured interviews, and general observation were employed accumulating appropriate data within sampled population. The questionnaire-based interviewing employed in collecting socio-economic factors and general attitudes on health care and nourishment of study population while, each infant mortality incident has been recorded as specific case with reference to their cause and nature. The SPSS software tools have been used for coating out of quantitative data. Selected substantial cases solitary were emphasized in the purpose of qualitative analysis.

¹One hundred cases has been planning to study by selecting at least 20 cases from each district. Twenty (20) cases that identified from each district that classified into four (04) GN Divisions that to be representing 5 cases from each at the proposal level, many practical issues emerged during field works in several aspects. Conducting research by outsiders in the medical sector in Sri Lanka is utterly challenging experience. The attitude and inconvenience of relevant authorities and other general impediments may be a good puzzle for another separate research. As a result of these basic impairments, some changes of sampling procedure such as shifting from randomizing to purposive selection has been occurred. However, these issues were solved as much as possible and they may not have seriously effected into final outcomes. The research has been conducted according to guidance of ethical clearance and permission of Institutional Research Board (IRB) of Faculty of Medicine, University of Peradeniya – Sri Lanka (Attachment-1).

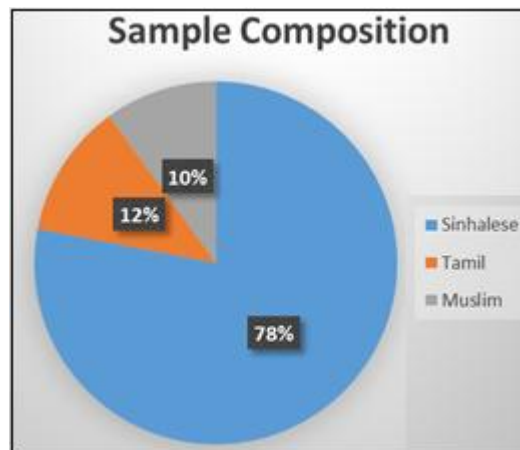


Chart 1

Even though, the research did not planning to purposively proportionate ethnicity wise infant mortality cases at the beginning, all major ethnic groups such as Sinhalese, Tamils and Muslims were included into the study population in circumstance. Chart 1 shows representation of each ethnic groups such as 78 per cent Sinhalese, 12 per cent Muslims and 10 per cent Tamils. Granting the shared proportion for each ethnic group would not be the exact percentage of the national population, this amounts may be a pretty advantage on the purpose of this research.

At the initial outset the primary data collection has been limited into one hundred cases, this sum did not limit into interviewing. The general observation and scrutinizing each household as separate cases lifted the magnitude of the research. Snowballing information on exceptional cases increased the qualitative value of the process. Visiting certain household followed by postal addresses could be momentous, in terms of understanding ground reality. For instance, when researcher reached into the destination of household addresses, some were already disappeared as a result of either the nature of ambiguous construction of their households or other grounds created by various socio-economic factors.

4. Results and Discussion

The intellect of parents is a doubtless advantage of their children in many aspects. The mother's educational level and general knowledge may be the most crucial in terms of advancing healthiness of whole family. She has a major role to be aware of nutrition and health care needs of children and herself. Frenzen & Hogan (1982) show a higher rated correlation between education and reduction of IMR by their research conducted comparing demographic factors of rural Thailand. Particularly they have emphasized the mother's educational capacity is rather significant in terms of improvement in infant health and survival, on their decision making capacity regarding size of the family, the adoption into family planning techniques and the progress of the fertility transition. Formal educational paves the way to the mother to be mentally and physically prepared on condition that a healthy baby to the family as well as the society. Chart 2 shows the formal educational level of population. Except a single case, all mothers' education does not exceed GCE Advance level (A/L). Vast majority; 66 percent marks that

belong to cohort that of Grade Eight to GCE Ordinary Level (O/L) category.

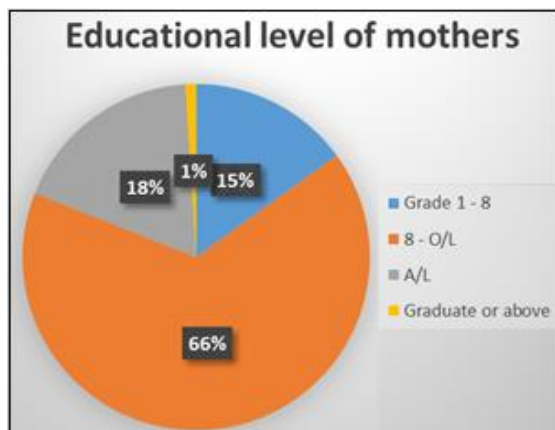


Chart 2

When it compares with national statistics of education, study population seems clearly fitting with groups that having less opportunities of modern education. For instance, according to Department of Education, the percentage qualifying for GCE A/L from the total who sat for GCE O/L are accordingly 69.68 (2016), 70.11 (2017), 71.66 (2018) and 70.59 (2019). In same years statistics indicates that candidates sat to GCE A. L qualified to university entrance such as 62.17, 64.38, 62.86, and 66.03. Moreover, mothers reported infant deaths cases show this much below average educational performances in spite of national literacy rate is 97 percent in 2019 and 98 percent in 2020 (DCS, 2020).

The relationship between education and accessibility to the job market is interdependent. Lack of educational qualifications often leads to lower ranking and less privileged employment opportunities. Chart 3 shows the nature of employments of heads of households of each family reported infant deaths. It is crystal clear that many families delegated in infant mortality tendencies are belong to lower middle class of the society. The head of household of these families usually attached to less desirable employments in the job market. Although, Table 3 ordered their jobs into forms of limited classification, certain cohort represents many variants within it. The common factor behind this is, almost all jobs are glued to the nature of generating limited quantity of monthly income.

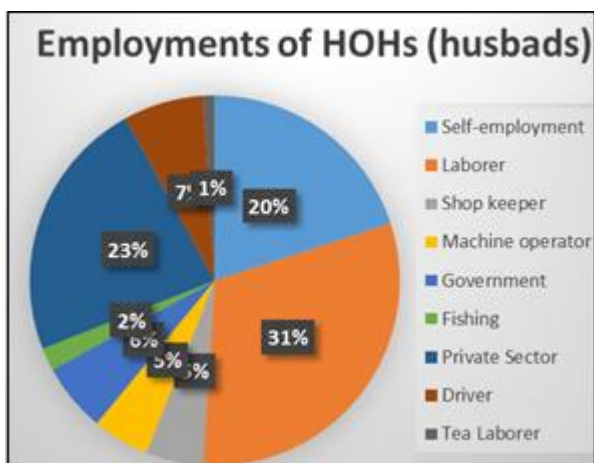


Chart 3

Inspite of family economy has been so marginalized, the women are avoided supporting it attached to formal employment sector. Chart 4 shows 73 per cent women are in unemployed category. The rural dwelling and lack of educational qualification may be the fundamental cause creating this situation. The limited employee mothers are also belong to works in under-paid and unskilled laborer category including jobs in government and private sectors. Even though, Sri Lankan women employment rate has been gradually expanded during recent decades, many of married women in the bottom line seems to be apart from all those opportunities. According to the World Bank collection of development indicators (compiled from officially recognized sources), Sri Lanka women employment in service was reported at 45.04 per cent in 2020 (<https://tradingeconomics.com>, Accessed: 05.05.2021). Usually, the garment industry and other established network of supermarkets of private sector in Sri Lanka create job opportunities that has demand for female labor. However, factors such as marital status, household responsibilities, geographical distance for job markets and other personal matters including attitudes of self and family members are vital avoiding them in being employed of those sectors.

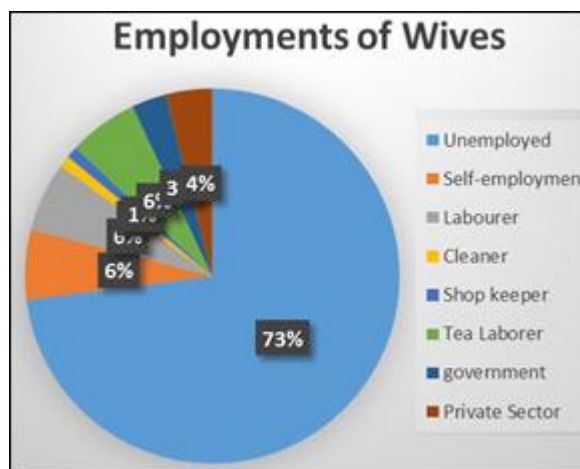


Chart 4

Although, married women are favored in engaging income generating activities that is accessible within household premises, many areas in the rural sector are lacking of those opportunities except rubber tapping or tea plucking and similar alternatives. Therefore, the common trend among women is being limitation into everyday household routings.

The monthly income level considered that the whole study population is belonging to majorly low-income families while minor amount goes to middle-income category. Economic factor may be the most influential that may regulates every other demographic indicators. Many other non-biological researchers who intense on infant mortality issue have emphasized the income disparity among groups is as a remarkable point (Eberstein, 1989; Uzma & Butt, 2008; Doessel & Williams, 2014).

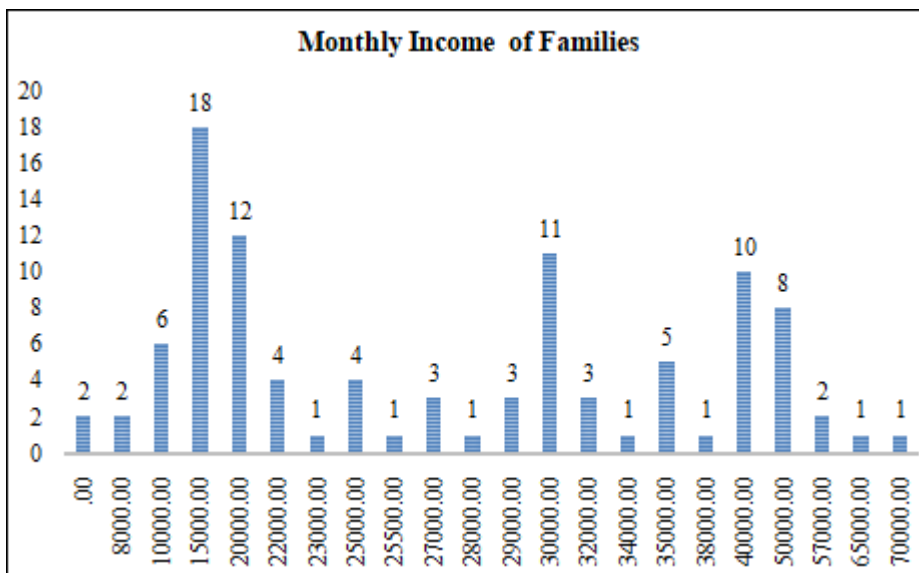


Chart 5: Levels of Monthly Income of Families (Rs.)

Granting, the fluctuation value of local currencies is usually uncertain, a general impression about consumption pattern of relevant families can be assumed by using these indicators. On the basis that of Rs.40, 000/-is needed to overcome needs of a family which is consisted of five members, the chart5 shows that 12 percent families only exceed this minimal stand. The vast majority is belonging to subsidized economic category. Despite members of these families are engaged in many everyday income-generating activities, they are uncertain and inadequate to overcome daily challenges.

The condition of household level sanitary facilities silently reflects economic status, family health and attitude towards primary healthcare of all household members. The quality of the family lavatory may be an appropriate indicator that every healthcare researcher unanimously agreed (Megama, 1980; De Silva, et al.2001). In spite of many financial difficulties, this research reveals that more than 90 percent households have been successfully maintained comparatively satisfactory level family toilets. Excepting certain occasional incidents, almost all families have been lucky to claim for possession of privately usable family lavatories. Beside, every household apart from two or three exceptional cases owned just a single lavatory for the use of all family members. The floor preparation of the toilet was either tiles or cement, many of them have shown the utmost attention of each of them to keep clean their toilets as much of possible manner. According to UNISEF (2020) the Proportion of population using at least basic sanitation services was 96 percent, while proportion of using limited sanitation facilities just a single percent in 2020. However, the Table 6 shows significantly that seven per cent households within study sample were still using tunnel-fit toilets. Even though, these types of lavatories may be were common at two decades ago in the rural sector, this indicators may not be a good message compared to limited space availability of their household premises building them in an adequately distanced space from home.

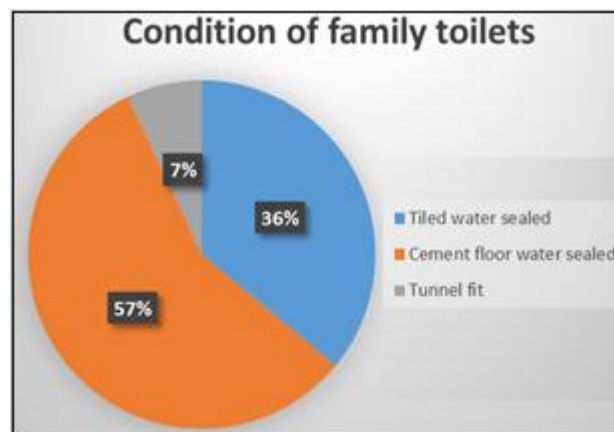


Chart 6

An exceptional case about a family lavatory that found in Nuwara Eliya may be interesting to readers to have a general idea of using the condition of household toilet as social-status indicator. The mother ‘A’s home is situated at a sloppy and unstable in elevation land within Nuwara Eliya Municipality. When we reach there, we realized that, entire area has been heavily popularized by unauthorized residencies. The messy constructions, fussy short-cuts, polluted environment was common there as well as all other urban shanties. Her residence was home to ten people including own mother, sisters, younger brother and her children. The house was limited to the main hall, single bed room and kitchen only. Internal partition has been made used by a kind of artificial wooden sheets. Their family lavatory was situated closed proximity but separate to the home. It was covered by used roofing sheets and pieces of cast-off saris. The floor was not plastered over rather than based on ordinary rough soil. Yet, there was a water-shield scotting fan fixed to a PVC tube that drive on the surface to the pit. We were supposed to consider it as a “water-shield” toilet. However, this was an exceptional case, that may not applicable to whole.

Supplementary Factors

In addition, selected other factors have been perceived in this research. The distance from home to public transport

services was an important dynamic among them. Since being pregnant obliging frequent consultation of doctors and hospitalizing in final stages is required, the accessibility to the public transport system has been concentrated. The 'institutional birth' or institutional delivery is known as the safer mode of reproductive health. According to *Measure Evaluation* webpage, many countries have succeeded in preventing maternal as well as infant mortalities adapting into 100 percent hospital deliveries (Access: 29.05.2021). For instance, Mongolia has shown The maternal mortality ratio (MMR) reduced from 186 to 44 per 100, 000 live births, and skilled birth attendance (SBA) increased from 95.0% to 100.0% between 1990 and 2015 after augmenting hospital delivery rate under National Health Insurance Scheme was introduced in Mongolia in 1994 (Taazen et al., 2020). Sri Lanka may be contented in the sense of 99 percent hospital deliveries (Annual Health Statistics, 2019), despite many countries demonstrate their grievances on high rates of hospital bills at delivery periods (Nam et al., 2019). The concurrent welfare-based healthcare system prevailed in Sri Lanka may be positively influencing to record this trend.

Even though, some may emphasized that certain resources including natural water sources and fresh air is a blessing factor in terms of retaining healthy lifestyle in the rural sector, it is obvious as far as hosting to those environmental beauties, they are being remote from modern urban facilities. The infrastructure including road facilities are hitherto desperately underdeveloped in numerous tested areas. Many used to travel for everyday purposes fairly on foot. Sometimes, the total length of foot paths network may be much higher than that of the overall dimension of general transport structure of the country. The depressed fact behind this is, the most of these immature transporting system has been spreading over remote and rural areas over the Island. Although, some may argue that, this manner of natural as well as spontaneous, lifestyle-exercise could be viable to make unintended advantage, our personal observation is, that would be 'excessive' for a physique which consume inadequate calorie rate per day. As this reveals, 83 per cent of population has shown capability of accessing a main road that open public transport services within maximum length of five KMs. However 10 percent has recorded that they used to pass at least 5-10 KMs to reach a main road while seven per cent reports more than 10 KMs from home to a main road.

In a case what we studied in Badulla district, we used to pass at least ten KM from main road to a junction which available a small trishaw (three-wheeler) park alone and then we could reach only a limited distance by using a rented trishaw despite at least one more km to the destination. The 38 years old unemployed mother was living her husband's native house which is still home to two other siblings and parents. According to statement of householders, the mother of the mortal child has consulted a doctor twice during her pregnant period. Whence, she was shown serious physical disturbance, the relatives have rushed her to hospitalize. The mother who passed all the way to the three-wheel park on foot has delivered the baby in the three-wheel taxi prior to reach the hospital. According to information given by mother, the doctors have realized that there was one more unformed figure of a baby is remained her womb. Even

though, the doctors have succeeded surviving the mother by an immediate surgery, her normally born baby has been fortunate to live just eight days only.

In another case observed by this researcher in an estate sector of Ratnapura district could apprehend one of the tragic stories behind infant mortality incidents. When we were reaching at the given address, the mother of the infant baby was no more alive. Her own husband has knifed her to death after several weeks of her delivering. Since the culprit also being imprisoned, the remains of their abandoned shanty house was entirely seized by bushes. As information provided by neighbors, the mother has been regularly harassing by her husband even in her expectant period. Now people reluctant to enter into the stated ruined household premises as a result of frequent "ghostly sounds" come from at night. This case depicts in what extent social marginality, illiteracy and poverty is making unintended avenues to infant mortality causes. Some supplementary economic as well as cultural issues could be found related to many cases. For instance, a young mother (Just 19) met in the same district who was with her second baby in hand when we were reaching to her poor household. She has been a school girl until she was receiving a "missed call" from whom that triggered her to unexpected pregnancy. Currently she was married to that young and underemployed person. She has lost her first baby delivered in her seventeenth. The young mother is no more lucky to receive further precaution of own parents since she made damage to their 'family honor'. Another young Muslim mother in Hambantota district who lost her first and sole baby that she delivered at just her eighteenth. Even though, the baby's death certificate considered that the immaturity of the mother as one of the causes, her parents extremely reluctant to accept the quoted statement. In a study that has been analyzed infant mortality cases of three Caribbean countries such as Trinidad, Guyana and Jamaica that were in 1980s has claimed that births to very young mothers were shown to have higher risks of infant mortality than those to women in their twenties (Ebanks, 1987). Although, Pampel & Pillai (1988) are in doubt regarding this query, they never have challenged the idea that at least medium effect of teenage pregnancy to infant deaths.

At the time this researcher was in exploiting that to find relevant cases, the frequent experience was the unavailability of certain incorporates of those postal addresses. Sometimes, they may have provided either inaccurate residential details to hospitals or they may have been living in those spots temporarily for delivering purposes only. For instance, some exceptional cases revealed that, mothers from remote areas used to sequential stay in a rented or their relative's houses closed to an enabled city or a well infrastructure hospital in their delivery period. This research also reveals that the inaccuracy of head counting circumstance of infant mortality incidents considering district administrative units that is being presently practiced. Beside, this would be coherent occurring sampling issues considering to nature of these type of studies. It is certain to be that cause behind reporting lower rates infant deaths in above mentioned (page 3) administrative districts such as, Kilinochchi, Mannar etc. Since, this is the real underground situation, it should not be

underestimated. The disparate distribution of public resources among districts seems to be a larger issue in the development circumstance of Sri Lanka.

5. Conclusions

There are plenty of infant mortality studies that come from biological perspectives. Most of the times they are inherently limited into medical explanations. It is justifiable in terms of manner and form of information that they are received. These information may be adequate for medical purposes lone while, they may be avoidant in standings of further dipping of cases and in long term decision making purpose. The bigger picture behind infant mortality rate is prevalent over many aspects such as poverty, family issues, cultural matters, environmental factors, genealogical problems and other biological reasons. In-depth case-by-case analysis may be the solution revealing those variations related to the field. Therefore, the role of sociologists and obviously interdisciplinary approaches would be momentous in this circumstance.

The geographical profiles of different communities, income disparities among them, and inappropriate distribution of infrastructure seems to be common issues in Sri Lanka. Ultimate outcomes of those fundamental factors are shown reflecting from people lived in those far distancing location in rural and estate sectors. Exposed situation is not different among low-income communities in the urban sector. This research also exposed that high rate of correlation between infant mortality and income discrepancies among communities. The obliging to be lived in less-facilitated locations and poor household units is direct consequences of poverty. All reliant other factors such as poor education, malnutrition, family disruptions, and personal attitudes are strictly come subsequently. Whereas, Sri Lanka entitlements to be contented about gradual descending rate of reporting infant mortality cases, it has to go further distance to uplift the living condition of the general public. Unless that of implementing concurrent welfare-based healthcare system and the dedicated service of grassroots-level healthcare workers, we might be expressive in a different juncture on infant mortality tendencies in Sri Lanka.

References

- [1] Andrews, K. M., Brouillette, D. B. and Brouillette, R. T., 2008. Mortality, Infant, Editor (s): Marshall M. Haith, Janette B. Benson, Encyclopedia of Infant and Early Childhood Development, Academic Press, pp. Pages 343-359, ISBN 9780123708779, <https://doi.org/10.1016/B978-0123708779-9.00084-0>.
- [2] Annual Health Statistics-2017, 2019. Sri Lanka, Medical Statistics Unit-Ministry of Health, Nutrition and Indigenous Medicine
- [3] Baraki, A. G., Akula, T. Y., Wolde, H. F., Lakew, A. M., & Gonete, K. A., 2020. Factors affecting infant mortality in the general population: evidence from the 2016 Ethiopian demographic and health survey (EDHS); a multilevel analysis, BMC Pregnancy Childbirth 20, 299 (2020). <https://doi.org/10.1186/s12884-020-03002-x>.
- [4] Bairoliya, N. and Fink, G.2018. Causes of death and infant mortality rates among full-term births in the United States between 2010 and 2012: An observational study, PLoS Med 15 (3): e1002531. <https://doi.org/10.1371/journal.pmed.1002531> Academic Editor: Gordon
- [5] Bolt, R. A.1921. The Annals of the American Academy of Political and Social Science, Vol.98, Child Welfare (Nov., 1921), Sage Publications, Inc. in association with the American Academy of Political and Social Science, pp.9-16
- [6] Butz, W. P., DaVanzo, J., Habicht, J.1982. Biological and Behavioral Influences on the Mortality of Malaysian Infants, The Agency for International Development, Malaysia, Rand Corporation.
- [7] CIA World Fact book –Sri Lanka 2011. <http://teacherlink.ed.usu.edu/tlresources/reference/factbook/geos/ce.html> (Access: 20.03.2021)
- [8] Cramer, J. C.1987. Social Factors and Infant Mortality: Identifying High-Risk Groups and Proximate Causes, Demography, Vol.24, No.3 (Aug., 1987), Springer on behalf of the Population Association of America, pp.299-322
- [9] Department of Census and Statistics-Annual report, 1976. Colombo, Sri Lanka
- [10] Department of Census and Statistics-Annual report, 2014. Colombo, Sri Lanka
- [11] Department of Census and Statistics-Annual report, 2020. Colombo, Sri Lanka
- [12] De Silva, M. W. A., Wijekoon, A., Hornik, R., Martines, J., 2001. Care seeking in Sri Lanka: one possible explanation for low childhood mortality, Social Science & Medicine 53 (2001) 1363–1372,
- [13] Doessel, D. P. and Williams R. F., 2014. "Measuring the welfare of sub-groups subject to premature mortality: The new welfare measures", International Journal of Social Economics, Vol.41 Issue: 9, pp.722-746, doi: 10.1108/IJSE-06-2013-0149
- [14] Ebanks, G. E.1987. Trends in, and Some Factors Related to Infant Mortality in Trinidad-Tobago, Guyana, Jamaica, Canadian Journal of Latin American and Caribbean Studies / Revue canadienne des études latino-américaines et caraïbes, Vol.12, No.24 (1987), pp.45-67, <http://www.jstor.org/stable/41799629>
- [15] Eberstein, I. W.1989. Demographic Research on Infant Mortality, Sociological Forum, Vol.4, No.3, (Sep., 1989), Springer: pp.409-422, <http://www.jstor.org/stable/684611>
- [16] Frenzen, P. D. and Hogan D. P.1982. The Impact of Class, Education, and Health Care on Infant Mortality in a Developing Society: The Case of Rural Thailand, Demography, Vol.19, No.3 (Aug., 1982), Springer, pp.391-408, <http://www.jstor.org/stable/2060978>
- [17] <http://www.statistics.gov.lk/pocket%20book/chap13.pdf> (Accessed: 03.05.2021)
- [18] <https://tradingeconomics.com/sri-lanka/employees-services-female-percent-of-female-employment-wb-data.html> (Accessed: 05.05.2021)
- [19] https://www.measureevaluation.org/prh/rh_indicators/womens-health/sm/percent-of-births-in-health-facilities (29.05.2021)

- [20] Masuy-Stroobant, 2001. The Determinants of Infant Mortality: How Far are Conceptual Frameworks Really Modelled?, Université catholique de Louvain Department des Sciences de la Population du Development.
- [21] Meegama, S. A. 1980. Socio-economic Determinants of Infant and Child Mortality in Sri Lanka: An Analysis of Post-War Experience, Scientific Reports, No.8, WFS, Netherlands.
- [22] Mosley S. W. and Chen L. C 1988. An Analytical Framework for the Study of Child Survival in Developing Countries. Population and Development Review, No: 10, Child Survival: Strategy for Research: 25-45.
- [23] Nam J. Y., Cho E, Park E. C., 2019. Do severe maternal morbidity and adequate prenatal care affect the delivery cost? A nationwide cohort study for 11 years with follow up. BJOG.2019 Dec; 126 (13): 1623-1631. doi: 10.1111/1471-0528.15895. Epub 2019 Aug 20. PMID: 31359578.
- [24] Norton, M., 2005. "New evidence on birth spacing: promising findings for improving newborn, infant, child, and maternal health". International Journal of Gynecology & Obstetrics 89: S1–S6.
- [25] eRHMS 2021-FHB, Register Generals' Department, <http://fhb.health.gov.lk/index.php/en/statistics>.
- [26] Pampel, F. C. and Pillai, V., 1988. Teenage Fertility and Infant Mortality: Reply, Demography, Vol.25, No.1 (Feb., 1988), pp.159-161, <http://www.jstor.org/stable/2061486>
- [27] Stanton, E. A. 2007. Human Development Index: A History, Working Paper Series, No.127, Political Economy Research Institute, University of Massachusetts Amherst, Gordon Hall
- [28] Unisef 2020. UNICEF Data: Monitoring the situation of children and women, <https://data.unicef.org/country/lka/>
- [29] United Nations Development Assistance Framework (UNDAF) 2013-2017, Colombo (Oct.) 2012, <http://un.lk/wp-content/uploads/2013/02/UNDAF-2013-to-2017.pdf>
- [30] United Nations Human Development Report, 2020. Work for Human Development: Briefing note for countries on the 2015 Human Development Report – Sri Lanka, <http://hdr.undp.org/sites/default/files/Country-Profiles/LKA.pdf>
- [31] Uzma I., Muhammad S. B., 2008. "Socioeconomic determinants of child mortality in Pakistan: Evidence from sequential probit model", International Journal of Social Economics, Vol.35 Issue: 1/2, pp.63-76, doi: 10.1108/03068290810843846
- [32] Taazan B, Yamamoto E, Baatar B, Amgalanbaatar A, Kariya T, Saw YM, Hamajima N. Estimating cost of hospitalization for childbirth at a tertiary hospital in Mongolia. Nagoya J Med Sci. 2020 Feb; 82 (1): 47-57. doi: 10.18999/nagjms.82.1.47. PMID: 32273632; PMCID: PMC7103872.