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"Years of Potential Life Lost" implications on demographic bonus: Mortality trend in Venezuela, a developing Country.

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Introduction:

Many health policies defined according to the paradigmatic interpretation of the processes of demographic and epidemiological transition, as well as the enjoyment of the demographic bonus that many countries has experienced, were implemented along with "anti-natality" programs for sexual and reproductive health, as remedies for the diseases of countries, like Venezuela, to achieve full economic and social development.

From the early seventeenth century is known an inverse association of mortality and socioeconomic status of human populations (Toro M: 2007). One manifestation of this is the close association observed positive relationship between life expectancy and per capita income of different nations (World Bank 1993). It was also noted that the direct positive association has been observed historically between the level of health and development, understood as a complex phenomenon in which the income is distinguished on the one hand, and the set of available opportunities for people in a given population, on the other (Musgrove P. 1993 : pg 114).

The observed total mortality in a population, a usual indicator of social problems, when approached from the perspective of the manifestation of the difference in quality of life, no longer is enough to reflect social problems. So the differential mortality rate express biological, cultural, economic and social nature differences that must be carefully considered in the formulation of policies and the design of health programs by states (García H: 1989 : 6).

However, many studies try to establish the level of health of human populations based on the observed mortality indicators, used exclusively as gross and specific mortality rates, valuing each loss equally. To overcome this limitation and to assess the life lost by premature mortality, it is proposed the use of Years of Potential Life Lost (YPLL) indicator adopted by epidemiologists from middle of last century (Toro M: ibid).

The YPLL indicator illustrates the losses suffered by societies, because of the death of people, especially those in their economically productive period of life. In other words, the more premature death is, the greater the loss of potential years of life (PAHO 2003). This indicator has been widely used for the study of inequalities in health to make international comparisons (WHO : 2002) . Therefore, the analysis of the distribution of YPLL in different socioeconomic strata and its evolution over time, it is useful to know the impact of public policies on the protection of vulnerable groups (Sánchez, 2005).

The implementation of policies focused primarily on women of childbearing potential and newborns, probably has lead Venezuela, to a demographic winter and suicide population situation. From a socioeconomic standpoint, the worst damage occurs when individuals die after going through the period of total investment made by society in their training and education and job training. On the other hand, the lower socio-economic damage occurs when the individual dies after the period of productivity, but before moving to the consumption period. Consequently, governments should give more care to the leading causes of death in the economically productive age groups and in children, during demographic bonus period, for the analysis and prioritization of health policies (Toro: ibid).

Objectives:

Objective: To characterize the behavior of Years of Potential Life Lost due to violent deaths (homicides, suicides and accidents of motor vehicles), heart disease and infections in Venezuela between 1996 and 2010.

Specific objectives:

1. To calculate indicators of potential years of life lost due to violent deaths (accidents motor vehicle, homicide and suicide) in the economically active population of Venezuela between 1996 and 2010.

2. To calculate indicators of potential years of life lost due to heart disease in the economically active population of Venezuela between 1996 and 2010.

3. To calculate indicators of potential years of life lost due to infections in the economically active population of Venezuela between 1996 and 2010.

4. To interpret indicators of potential years of life lost due to violent deaths (car accidents, homicides and suicides) heart disease and infections in the economically active population of Venezuela between 1996 and 2010.

Material and Methods:

Years of Potential Life Lost (YPLL) is an epidemiological indicator which is calculated in absolute terms is made as to life expectancy at birth, can therefore be considered as an indicator of premature mortality (Orta, 2002). We used registries of Epidemiology and Vital Statistics of the Ministry of Health and Social Assistance or the Ministry of Popular Power for Health (MPPS) for the period 1996-2010. For practical purposes, we consider for calculating YPLL an average life expectancy of 73 years in that period, for men and women. For the selection of the diseases evaluated in this paper, we selected the top causes of death between 1996 and 2010, according to the records above-mentioned. From those records, we selected heart diseases, traffic accidents, motor vehicle, homicides and suicides, and infections. For infections, we selected those usually acute and predominant in mortality in such registry: pneumonia, influenza, intestinal infectious diseases, tuberculosis, septicemia, human immunodeficiency virus infection, and acute infections of the lower respiratory tract. Including tuberculosis, because it has a strong social and economic impact on the population aged 15 to 64 years.

Therefore, we made descriptions and interpretations of the number and rate of YPLL violent deaths (accidents motor vehicle, homicide and suicide), heart disease and infections in the

economically active population of Venezuela for the period 1996-2010. We employ the Population Estimates and Projections of the National Institute of Statistics (INE) based on the 2001 Census and Social Data Base of Foundation School of Social Management from the Ministry of Popular Power for Planning and Development.

Results:

When we compare different periods in Venezuela, of total YPLL in 1970, 56.5% were from the deaths among 1-14 years old group while in our research, YPLL in 2010 within 1-14 years old group represented 27.4%. Total YPLL in 2010 in 15-64 years old groups accounted for 38.5%. At the same time, the absolute number and rate of YPLL from homicide and suicide predominates in the 15 to 64 years old group between 2000 and 2010. Clearly they became first cause of YPLL (see Tables and Figures 3 and 4), when compared to the absolute number of deaths and mortality rates for specific causes of death from official registry, where they are numerically lower than those recorded from heart disease and cancer mortality. However, those deaths by homicides and suicides occurred in economically productive groups, while deaths by heart disease and cancer occurred in older groups.

Consequently, YPLL due to homicides and suicides in Venezuela increased 206 %. As a result, the mortality profile corresponding to AVPP mortality looks greater than the number of deaths and mortality rates for specific chronic degenerative diseases mortality in such period. According YPLL, Venezuela's mortality profile, evaluated by the percentage of change from mortality ratings would be: first, homicides and suicides, second heart disease and third infectious diseases in the of 15-64 years old group.

It is of notice, in the period 1996-2010, the significant increase in YPLL because of homicides is even greater than the YPLL due to accident of motor vehicles in the same period. Then, from the analysis of mortality and YPLL, is relevant also to consider the impact of those premature deaths in terms of economic costs, as mortality by homicide and suicides would be a loss in the national productive potential (potential working years lost). That is, the epidemiological and demographic pattern, from the crude death rates, puts chronic, degenerative diseases and tumors between the two leading causes of death, whereas our YPLL analysis puts homicides and suicides n first place.. What does this mean? It means that decision makers for services as well as health policy makers should consider the optimal allocation and use of resources in terms of YPLL more than just the absolute deaths. This way, they could ensure protection of productive age groups, who will maintain a productive economy during the demographic bonus period.

On the other hand, regarding our population evolution, while in Europe the drama of the population winter or population suicide is attributed to the decrease of the average number of children per woman of childbearing age (Total Fertility Rate), we assume that in Venezuela, population suicide would be due to premature mortality. That is, deaths that occur at younger ages before reaching life expectancy age, and that mainly affect the population aged 15-64 years. Whereas population winter would be induced in Venezuela by decreased average of newborn (TFR = 6.6 children per women between 1960 and 1965 to 2.2 children per woman in 2012), causing the increasing the size of the Venezuelan population $\geq$ 60 years old (7% in 2000, 15% in 2030), driving us to loss of creation of potential generational replacement.

Conclusions

Venezuela's epidemiological and social reality shows the urgency of reviewing the policy priorities defined in world events on population and development promoted by several international organizations. The rationale should be also to include hidden but quite vulnerable population groups in these events. Specifically, we refer to the population group aged 15 to 64 years, that is, the economically active population that economically supports the over 65 and under 15 years old groups. Because, primarily focus on control programs for sexual and reproductive health, as remedies for the diseases of countries like Venezuela, to achieve full economic and social development, probably has lead Venezuela, to a demographic winter as seen by by decreased average of newborn. The high absolute and relative figures by murders and suicides highlight the social and economic situation in Venezuela that could be characterized as a predominant culture of violence in particular within young population driving us to a population suicide situation.

We propose to include, in the policy priorities of population and development programs, a significant and continuous decline in deaths by homicide, due to socio-economic impact of lost of so many years of life for our country, especially under the conditions of current socio economical development that put at risk the benefits of demographic bonus in Venezuela.

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