ORIGINAL RESEARCH

Social Aspects of Maternal Mortality: A Case Study of the State of Mexico,

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Abstract

We now have evidence that maternal deaths result from a set of social, economic, biological and logistical problems in health services. However, the approach used to address these problems is still essentially medical.

In this study we examined some of the social determinants of maternal deaths between 2004 and 2006 in the State of Mexico. To do this we reviewed clinical files and used verbal autopsies. The medical causes of maternal death were similar to those reported in previous studies. 80% were a result of direct causes: the low socio-economic level of the deceased women was the fundamental determinant of mortality, in that it limits access to education, income, adequate nutrition, and medical care. This situation negatively affects a woman's ability to make health related decisions.

It is important to consider that when a young woman becomes pregnant, it is the beginning of a long term social and economic responsibility for which they lack appropriate resources. In conjunction with limited work opportunities, this situation perpetuates a vicious circle of poverty.

Introduction.

"A boy without a father is a boat that sails without a rudder; without a mother, the situation is much worse: he is a castaway " Thai proverb

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Only in the last two decades has maternal mortality been recognized as an important health issue, both in our country and worldwide. Despite the social, economic and political repercussions that this problem presents, the approach used to address it continues to be primarily medical, that is to say it examines the clinical causes without taking into account the determinants of those causes, in particular the social and economic ones.

We now have evidence that maternal deaths result from a set of social, economic, biological and logistical problems of health services; that they often occur due to a lack of access to the benefits of modern medicine or due to a poor application of the available knowledge and technology in the handling of pregnancy, childbirth and post-partum period. This multiplicity of risk factors associated with maternal death not only complicates the actions of the health sector directed toward ending maternal deaths but also compromises expected results.

Such is the case of the State of Mexico, which in the last 3 years has occupied the top ranks in maternal mortality in the country despite possessing an adequate medical and communication infrastructure and of being one of the states with most economic resources in the country. This situation led us to examine some of the social determinants in cases of maternal death from 2004 to 2006 in the State of Mexico.

With the intention of delving deeper into this subject, we will present the results of a investigation carried out in the state of Mexico with the objective of contributing to the analysis of the social and economic factors that are associated with maternal deaths that occurred in the state. Our purpose is to

establish the socio-demographic profiles that predict the most important causes of maternal death.

In order to meet with this objective the clinical files and verbal autopsies of all maternal deaths in the years from 2004 to 2006 in the state of Mexico were analyzed.

Background.

Maternal death is defined as "the death of a woman during pregnancy, childbirth, or within 42 days of the completion of the pregnancy, independently of the duration and the site of the pregnancy, due to any cause related to or aggravated by the pregnancy or related care, but not by accidental or incidental causes." (WHO/FHE/MSM/95.1)

The causes that underlie maternal death are basically of a medical nature, and they are grouped in "direct causes", among which pre-eclampsia and eclampsia stand out, as well as hemorrhage, abortions and infections. The other group of causes are the indirect ones, that often result from a preexisting condition or a condition that developed during pregnancy, childbirth or post partum but that was aggravated by the maternal physiological adaptation to the pregnancy; this is the case with diabetes, cardiac, or pulmonary illnesses, etc.

From the medical point of view, the great majority of these causes can be detected early and dealt with effectively. Given the preventability of maternal death, this should be considered a priority of primary social importance. A maternal death represents an expression of disadvantage of the social sector from where the mother comes.

In addition, maternal death represents a tragedy, as it implies that for each woman who dies many more will suffer a series of consequences that will have repercussions for the rest of their lives, such as the preventable loss of a young woman. This condemns small children to life as orphans and destroys a family. Frequently, among its repercussions is an increase in infant mortality, dropping out of school, the disintegration of the family and the premature entry of children into the labor force. Another component of this tragedy is that these women do not die as a result of any disease, but rather during the normal process of human procreation. (Langer A., 1994)

Maternal mortality is considered an indicator of social inequality in the social sphere, as well as a measure of the situation of women in society and of access to health and social services, food, and economic opportunities. Indeed, in the dawn of the 21st century, of the approximately 600 thousand maternal deaths registered every year in the world, 98% occur in developing countries. Whereas industrialized nations such as Canada, the United States of America and the majority of the European countries record maternal mortality rates lower than 15 per 100 thousand live births, in Africa and the American Continent it is common to see figures 10 or even 100 times higher. For this reason, it does not surprise us that rates of maternal mortality are considered trustworthy indicators of the degree of economic and social development of countries, as well as of the conditions of gender inequality.

Maternal mortality in the developing world shares certain characteristics: the majority of death are due to direct obstetrical complications; it is related to poor levels of education in the population about how to recognize pregnancy complications that merit the use of medical services; finally, the problem is aggravated by the insufficient access to ambulatory and hospital based obstetrical attention, as well as by its limited quality.

The situation of maternal mortality in Mexico is marked by all the previous characteristics, although it is undeniable that a remarkable reduction in rates has occurred in last the five decades. According to official statistics, there has been a drop from more than 100 for every 100 thousand live births in 1950 to a rate of approximately 75 for the year 2000. However, these numbers are 5 to 10 times higher than those of the industrialized countries of our continent, or those with greater development of their national health systems, such as Cuba and Costa Rica.

Even though the state of Mexico is considered one of the richest states, according to data of the INEGI for the period from 2003 to 2005, it held the last place as far as quantity of medical and nursing personnel per 100,000 inhabitants. Nevertheless it ranked first in terms of the number of

Obstetrician/Gynecological specialists. With respect to the availability of beds, the same source makes reference to an average of little more than six thousand beds, putting this state among the last places in terms of quantity of beds per 100,000 inhabitants. If this data sheds light on the situation of the large population that lives in the State of Mexico, these data are relevant to better understand the occurrence of maternal death in this state. (INEGI, 2007)

Methods

Clinical files and verbal autopsies of cases of maternal death in the State of Mexico for the years 2004 to 2006 were reviewed.

For the analysis of the information two indicators for their measurement were used: the ratio of maternal mortality and the rate of maternal mortality. The first allowed us to measure the relation that exists between the number of deaths and the number of births. This indicator combines fertility with maternal deaths. The second measures the speed at which maternal deaths occur in women of child-bearing age within a certain period.

Results

The clinical files and verbal autopsies of 385 cases of maternal death in the state of Mexico were reviewed, in the period from 2004 to 2006. The lack of appropriate information from the previous years made it difficult to carry out an analysis of a greater period of time.

1. Maternal mortality in the state of Mexico

The incidence maternal death increased during the study period from 46.31 per 100,000 live births in 2004, to 60 per 100,000 live births in 2005 falling in 2006 to 36.95 per 100,000 live births.

Combining all three years the rate of maternal death remained similar during the study period, that is to say 3.04 per 100,000 women of reproductive age for 2004, to 3.85 in 2005 and 2.3 for 2006.

72% of the women died of direct causes. Pre-eclampsia and eclampsia were the main causes of death (accounting for 26% of deaths), followed by hemorrhage (9.5%) and infections (8.1%).

2. Maternal mortality by age and marital status

A particular aspect of any maternal death is that it is a premature death. In this study the average age of the women who died during the period of study by maternal causes oscillated between 28 and 29 years of age, with a minimum age of death between 12 and 17. These data are supported by other studies, in which Years of Potential Life Lost (YPLL) were estimated. This indicator is obtained by calculating the difference between the age of death and the age to which the women would ideally have been expected to live. We calculated, in agreement with other studies that on average each maternal death was equivalent to 40 YPLL. (Lozano R., Hernandez B., Langer A., 1994)

Almost half (46% of average) of the women were married; however the percentage of married women seems to be declining over time. As the percentage of married women decreases, the percentage of single women and those living in common law relationships (13% and 24% respectively) increases. These are conditions that associated wit social exclusion and diminishes the economic and labor expectations of the women, promoting even greater levels of poverty.

It is necessary to point out that when looking for more information on their partners, data such as schooling, occupation, etc. was lacking in more than 90% of the cases, which leads us to wonder about what the actual situation of the women was.

3. Maternal mortality by education and socio-economic level

For the current study, educational attainment was divided into four groups: no schooling, primary school incomplete, primary school complete, and secondary or more. 6.2% of the women who died due to a maternal cause had not attended school, 14% did not finish primary school, 22% did, and 58% had studied secondary school or more. It is interesting to analyze how mortality rates differ when correlated with level of schooling. The rate of maternal mortality by schooling level was estimated, for 2004: women without schooling and with incomplete primary schooling had a maternal mortality rate of 15.4 per 100,000 inhabitants; those that had completed primary and secondary school

had a rate of 9.3; and those that had attended preparatory school or a technical college had a rate of 8.6.

When evaluating the risk that schooling represents for maternal death, we found a negative association with schooling. Meaning that illiterate women have, according to the data, a risk of dying 6 times greater than those who have studied preparatory school or more; in those that did not finish primary school the risk is 4 times greater using the same reference population, and in those that did complete primary school, the risk of dying is 3 times greater than the reference group. As can be observed, greater levels of schooling diminish the risk of maternal death, data which are consistent with other similar studies. (Lozano R., Hernandez B., Langer A., 1994)

The data on the socio-economic level of the women who died from maternal causes was taken directly from their clinical files, using criteria established by the State Secretary of Health. According to this ranking 75.8% were of a low level and 24.2% of middle level; 3% did not speak Spanish. It is worth mentioning that there was no woman of a high socio-economic level reported during the study period.

4. Maternal mortality and other medical characteristics

As far as other characteristics that the death certificate registers we can see that almost three quarters of maternal deaths appear in uninsured women; 60% of the total died in medical units, almost 22% in private hospitals, 14% at home and 6% in other places.

There is an important association between not having insurance coverage and not receiving medical attention before death. It was estimated that between 1989 and 1990 women without coverage had seven times greater risk of not receiving medical attention before death, than those with coverage. (Lozano R., Hernandez B., Langer A., 1994)

In addition, we found that 35.5% of the women died after cesarean birth and 23% subsequent to normal childbirth, adding these percentages we can see that a little over half of the women died during the post-partum period, which indicates that there were problems related to the quality of medical attention.

Finally, concerning prenatal care we found that 62% of women were receiving care, of which 23% attended between 2 and 3 consultations and 24% more than four visits.

5. Basic characteristics of the cases of maternal death

A multi variable analysis was undertaken in order to obtain a profile of the women who died of maternal causes, from which it was possible to establish the sociodemographic characteristics associated with certain causes of maternal death.

Regarding toxemia during pregnancy, the model that best predicts maternal death is one that looks at single, young, urban women, with schooling beyond secondary school, and without medical coverage. In the case of hemorrhage there are some interesting differences, for example that it is more likely to happen in older (over 25), married women, dedicated to the home, with a lower level of schooling than secondary school and without medical coverage.

Analysis

Our findings are consistent with those found at the international and national level, confirming that the factors associated with maternal deaths reflect problems in the social structure, where health services, which also play an important role, are an expression of those social structures.

The medical causes of maternal death are very similar to those reported in previous studies, in which around 80% are a result of "direct causes." Nevertheless we notice a variation insofar as toxemia problems have advanced to first place surpassing hemorrhages, and their incidence is greater during post-partum period after a cesarean section. This situation is closely related to the quality of services, in particular those medical services offered to the population of women without coverage and with limited economic resources, as is the case of the great majority of women who died during the study period.

The low socio-economic level of the women is a fundamental determinant of maternal death, given that it limits access to education, sources of income, appropriate nutrition and medical attention, all aspects which affect women's ability to make appropriate decisions regarding their health. Some women refuse medical attention due to cultural aspects or because the decision is in another family member's hands; this is even more likely when they are unmarried.

What is the psycho-social condition of a young woman of limited economic and educational resources, who becomes pregnant, and whose partner abandons her leading to a process of segregation, as could have been the case in many of the cases studied? Due to the exclusively medical focus of the clinical files and verbal autopsies, there is no way to know. We recommend the implementation of qualitative strategies that would allow for a more in depth understanding of the woman's condition, to understand the context in which pregnancy occurs and develops, in order to propose alternative solutions for maternal death that are more in tune with the needs of women.

It is important to consider that the when a young woman becomes pregnant it is the beginning of a long term economic and social responsibility for which these new mothers have few resources,. This combined with limited labor opportunities - which pregnancy limits even more - perpetuating a vicious circle of poverty. As has been shown in previous studies, in the situation of the young pregnant woman with or without a partner, the family offers to support her even when they have limited resources and she becomes an extra burden for the family. Therefore, if the adolescent pregnancy occurs in conditions of poverty and it has negative economic and social consequences, the intergenerational repetition of adolescent pregnancy can be an intermediary mechanism in the intergenerational reproduction of poverty, maintaining a circle of poverty-pregnancy in adolescents. Which is why in contexts of poverty, early maternity perpetuates the socio-economic disadvantages and the inequality that women suffer at school and work. (Alatorre J., and Atkin L. 1998)

The reduction of maternal death requires a coordinated and sustained effort. The actions must necessarily start from within the family unit and continue all the way up to national health and economic policies. An important element to consider in the reduction of maternal mortality is an understanding of the causes that underlie the medical causes, which may actually be a consequence of previous determining factors of maternal death.

Finally, it is important to keep in mind that maternal death affects the whole family with severe future consequences, particularly for children who are left without their mother, which translates into an increase in infantile morbidity and mortality, scholastic desertion, increase in violence, etc. Maternal death has been recognized as a social problem as its occurrence is broadly related to poverty and marginalization. It is also a public health concern because it reflects the deficiencies in the accessibility and quality of maternal health care services that are offered to the population.

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