THE LINK BETWEEN ENVIRONMENTAL FACTORS AND ABORTION

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Abstract: *This paper explores a less-known aspect of the abortion issue, namely the link between abortion and environmental factors. Environmental factors are sometimes the cause or at least a very important link in a causal chain which can have significant effects on the abortion issue. As we try to identify environmental factors which influence the evolution of pregnancy, we realise that these factors are mainly created because of the people's influence over environment, and are not effects created solely by natural environment. Mainly the discussion about abortions which occurs due to environmental influence focuses on the abortions which occur when the pregnant woman would want to keep the pregnancy. When the pregnancy is not wanted, the question does not have the same relevance, as the pregnant woman would have probably tried to have an induced abortion. Many studies revealed the link between exposure to the residues of different fuels and abortion rates. Studies have proved that there is, beyond doubt, a link between women's exposure to radioactivity and miscarriages. As we can no longer deny the effects of the environment on the evolution of pregnancy, it is our duty to take effective measures in order to reduce the number of abortions determined by environmental factors, before it is too late.*
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1. THE IMPORTANCE OF ANALYSING THE RELATION BETWEEN ENVIRONMENTAL FACTORS AND ABORTION

This paper explores a less-known aspect of the abortion issue, namely the link between abortion and environmental factors. Nevertheless, these factors cannot generally be separated from social and economic factors, to which they are closely linked. We want to emphasize the importance of environmental factors, because we believe that environmental factors are sometimes the cause or at least a very important link in a causal chain which can have significant effects on the abortion issue. After all, humanity and its development have always been heavily influenced by environment. So, it is natural that one vital issue of mankind, which is procreation and its related problems, to be also influenced by environment. We admit that this relation between abortion and environment is not a very common issue to analyze, when speaking about abortion.

Usually, when we take into account the abortion matter, we tend to focus on the better-known aspects, like the opportunity of criminalizing abortion, the problem of illegal abortions, the fetus's right to life, the mother's right to choose abortion. Thus, it results that we neglect some issues which are not prominent. But, despite the fact that these issues are not prominent, it does not mean they are not important.

2. THE CONTENT OF THE RELATION BETWEEN ABORTION AND ENVIRONMENT

2.1 Environmental factors which have a toxic effect on the evolution of pregnancy

As we try to identify environmental factors which influence the evolution of pregnancy, we realise that these factors are mainly created because of the people's influence over environment, and are not effects created solely by natural environment. Of course, we can reasonably think that, sometimes, natural causes which exclude human interference determine spontaneous abortion. For example, the accidental ingestion by a pregnant woman of a toxic mushroom, that leads to abortion. Also, a sudden change in climatic conditions may occur, which severely influences the living conditions of the pregnant woman and this causes a miscarriage. Sometimes, a natural emission of toxic gases near a volcano may lead to abortion. But these are isolated cases and at least some of them can be included in a natural rate of spontaneous abortion which, over all, does not have the potential of influencing large-scale population. The problem occurs when environmental factors begin to affect population at a large-scale.

We realize that mainly the discussion about abortions which occurs due to the toxic environmental influence focuses on the abortions which occur when the pregnant woman would want to keep the pregnancy. When the pregnancy is not wanted, the question does not have the same relevance, as the pregnant woman would have probably tried to have an induced abortion. Also, the discussion takes into account the situation when the toxicity of the environment leads to foetal malformation, which makes the pregnant woman to want to have an abortion. The latter aspect is even more important in countries where abortion has a severe legal regime.

It is also important that some studies conducted on the issue of the environmental influence over the pregnancy course revealed some unexpected results. Often, although the influence of the environment on the occurrence of miscarriages is established beyond doubt, the mechanism for such an effect is not clearly understood.

In the following lines we will present some studies which have analysed the connection between environmental factors and spontaneous abortion, and we will analyse the results, as a part of our quest for a better understanding of the relation between environment and abortion.

A recurring aspect analysed by some studies is represented by the link between exposure to the residues of different fuels and abortion rates. A study conducted in China proved that the exposure of a pregnant woman to polycyclic aromatic hydrocarbons, especially in early pregnancy (under fourteen weeks of pregnancy) can affects the

embryo, leading to miscarriage. The risk was found to be higher when the pregnant woman lived near intense car traffic. Also, the risk was higher when the pregnant woman performed regular cooking activities during pregnancy, thus being exposed to the residues produces while burning different fuels used to produce the heat necessary for cooking [1]. The connection between fuel burning and spontaneous abortion has been also revealed by other studies, conducted in other global areas. For example, a study conducted in California, in the United States of America, revealed that living within an area of 50 metres near an intense circulated road increased the risk of spontaneous abortion [2]. Researchers have also proved that exposure to air pollution due to the use of different combustion fuels, when it does not lead to miscarriage, can influence foetal development and may determine preterm birth and a low birth-weight [1, 2].

As we have affirmed above, sometimes, the results of the studies conducted in order to determine the effect of the pollution on pregnancy reveal some unexpected aspects. For example, the study conducted in California that we have presented above showed that the influence of the air pollution on the evolution of pregnancy was higher among people with Afro-American descent and among non-smokers [2]. It results that further studies must be conducted, in order to elucidate the mechanisms that lead to these results.

As regards the enhanced effect of the pollution on non-smoker pregnant women, we can reasonably assume that the body of a woman smoker develops a certain degree of tolerance to toxic environment, which makes the woman smoker to be more resilient to air pollution, and this, somehow, protects the foetus. This is surprising, due to the fact that several studies confirmed that women smokers and women exposed to passive smoking present a high risk of spontaneous abortion, still birth, tubal ectopic pregnancies and congenital abnormalities [3, 4]. Still, the influence of smoking on pregnancy is far from being elucidated. Some studies showed that, although there are some statistical differences between women smokers and non-smokers in regard to the evolution of pregnancy, these differences are not significantly statistically [5].

As regards the fact that the study that we have presented above proved that air pollution influenced the evolution of pregnancy of Afro-American women more than the pregnancy of white women a possible cause may emerge from the economic differences between Afro-Americans and white people, as it is statistically proven that there are significant differences between the two racial categories [6]. This difference may have relevance, because a better economic status allows a woman to take a greater care of her pregnancy. This includes having better nourishment and also the access to quality medical services.

Therefore, it may be that the air pollution alone does not necessarily leads to miscarriage. Nevertheless, the toxicity of the environment is an important factor which, combined with other circumstances, may have an influence on the evolution of a pregnancy and sometimes it may lead to spontaneous abortion.

2.2 The effect of the nuclear experiments and nuclear disasters on the evolution of pregnancy

When we think of the worst disasters that can happen to environment, definitely nuclear disaster is one of them. The XXth century has shown us a glimpse of the scale of the possible effects of a nuclear catastrophe. Apart from the nuclear bombs that have been launched over the Japanese cities of Hiroshima and Nagasaki, the accident which has happened at Chernobyl in 1986 has brought us an increased awareness towards the danger of unleashing nuclear power. Even more, different countries have performed a series of nuclear tests, and the results of these tests furthermore make us undertake a serious analysis of the effects of the nuclear energy.

In what concerns this paper, we are interested in finding the effects of the nuclear power on reproductive matters. After the nuclear bombing of Hiroshima and Nagasaki women who were pregnant at the time of the attack and who survived the attack experienced high rates of miscarriage. Also, the foetuses exposed to radiation due to bombings often developed intellectual disabilities or different ailments, including cancer, after birth [7]. Studies have proved that there is, beyond doubt, a link between women's exposure to radiation and miscarriages. Still, the direct link between radiation and spontaneous abortion may be difficult to prove, because often miscarriages are not registered; therefore, their occurrence can be traced indirectly, when a decrease in the number of birth is observed. Also, we may take into account the induced abortions, which also affect the number of births. After the nuclear disaster at Chernobyl, the number of spontaneous abortions and stillbirths increased significantly in Russia and in other countries exposed to contamination, such as Poland, Hungary, Sweden, Great Britain, Finland, Norway, Switzerland, Greece, and Italy. The effects of the nuclear explosion at Chernobyl on the course of the pregnancy have been traced even at 18 years after the incident took place [8].

Apart from the spontaneous abortions and stillbirths, the nuclear disaster of Chernobyl also determined a raise in the number of induced abortions, because people were concerned about the effect of the radiations on their unborn children. For example, this phenomenon has occurred in Denmark [9], Italy [10], Greece [11], and Sweden [12].

An interesting phenomenon which occurred after the Chernobyl accident has been observed. It consists in the increase of the sex ratio in Russia and Cuba after Chernobyl, namely the fact that more boys and fewer girls than were expected were born. In Cuba, this phenomenon has been determined by the use of food imported from Russia, as Cuban authorities did not have enough resources to protect population from the possible effects of the radioactive contaminated food [13].

As regards the effects of nuclear experiments on the evolution of pregnancy, there are studies which confirm the link between such experiments and spontaneous abortion [8].

2.3 A remark about the link between weather, holiday, and abortion

Within this paragraph we want to mention a study which has pointed out that there can be established a link between certain climatic conditions and abortion, as well as between certain holidays and abortion. This study shows that, at least among young people, there is a peak of the sexual activity in summer and over Christmas, which leads

to an increased number of abortions in February and in late summer. The authors recommend that, due to the increased risk that an unwanted pregnancy occurs over these periods of time, authorities must enhance sexual education activities and health-care services during these periods [14].

We also believe that we must take into account all information which can help reduce the risk of an unwanted pregnancy and, therefore, can help reduce the number of abortions.

3. CONCLUSIONS ON THE LINK BETWEEN ENVIRONMENTAL FACTORS AND ABORTION

The information presented above makes us affirm that environmental factors have an important effect on reproductive matters, including on abortion. The most important effects refer to the miscarriages and stillbirths which occur due to the exposure to toxic factors, including radioactivity. As we can no longer deny those effects, it is our duty to take effective measures in order to reduce the number of abortions determined by environmental factors. Once again, the key element seems to be education, which can draw us attention on the reproductive problems determined by environment and can make us aware that we have the responsibility of taking measures before it is too late.

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