Lead Exposure in Children

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**Problem Statement**

Unborn babies and younger children are at a higher risk of getting serious health complications due to lead exposure.

**Research Questions**

What are the sources and root of exposure to lead?

What is the health effects resulting from lead poisoning?

**Problem Statement**

Unborn babies and younger children are at a greater risk of being exposed to lead poisoning than other people. The younger children have a habit of picking and licking toys, batteries, and surfaces. These objects have a significant amount of lead that will make them have serious health effects that will affect them for life. Lead affects almost every part of the body. It particularly has debilitating effects on the central nervous system of unborn babies and young children. The risks of children getting exposed to lead are not based on theoretical calculations. They are all derived from existent studies that focused on children.

Lead poisoning is one of the recognized childhood diseases which is derived from a toxic environment. Children today are at a greater risk of getting exposed to lead from several sources. Lead poisoning has become a burden in the world for too long. The pattern and sources of lead exposure vary from country to country or place to place within a nation. A country may also vary in the degree in which they recognize the problem of lead exposure and the prevention programs that they have put in place. Certain exposure sources make many people recognize lead poisoning. However, a few populations living in desolated areas are not aware of lead poisoning and its serious effects on children health. When a few nations, rural homes, and people are taught about the dangers of lead exposure, they will reduce putting the children and unborn babies at risk of developing health complications.

**Research Questions**

**What are the sources and root of exposure to lead?**

The important environmental lead sources are contaminants from mining, manufacturing, smelting, and recycling activities. Other sources are using lead paint continuously, gasoline containing lead and leaded jet fuel (Mackay, et al., 2013). A greater percentage of the world lead consumption is directed towards the manufacture of lead-acid batteries for powering vehicles. Lead is also used in making many other products such as jewelry, pigments, toys, solder, some cosmetics, and stained glass. Drinking water from pipes that are joined by lead soldier also has lead levels.

Lead gets its way inside the human body through inhalation and ingestion. Lead exposure sources can be either environmental or occupational. Children will inhale lead particles that are generated from combusted materials containing lead. For example, during stripping paint, smelting, and using leaded gasoline jet fuel. Ingestion of lead occurs when a child takes in water from a dripping pipe that is made of lead. Some homes have water directed to them through lead pipes, the water is contaminated with lead and it will not be safe for children consumption. The use of some traditional medicines containing lead also leads to lead poisoning.

**What is the health effects resulting from lead poisoning?**

Lead has serious consequences on children’s health. A higher level of lead exposure leads to an attack on the central nervous system and the brain; the result can be convulsions, coma, and sometimes death. Most of the children survive but they acquire behavioral and mental disorders. Low levels of exposure cause no serious symptoms and the children can be seen to be normal. Lead causes debilitating effects on the body systems (Shonkoff, et al., 2012). Particularly, the brain becomes affected leading to reduced intelligence, reduced attention, and an increase in antisocial behavior (Jakubowski, 2011). Lead exposure causes hypertension, renal impairment, and hypertension. The neurological and behavioral disorders are known to be irreversible.

Making parents aware of the health defects that will be caused by exposure to lead will make them be precautious and keep them away from materials containing lead.

**Approach for the Study**

The study will take a mixed approach. Both qualitative and quantitative research methods will be applied to help understand the effect of lead exposure in children. Qualitative research is mostly carried out by developing complicated and well thought out inquiry of theoretical concepts. Mostly, qualitative is exploratory in nature and used when forecasting outcomes. Through -qualitative research, in-depth information will help individuals get deeper understanding of the issues. In quantitative approach, the user will come up with different statistical tests that will help give a meaning to the data.

**Sources of Information**

In most cases, data collection relies so much on the methodology that is applied. Through data analysis, the reliability and validity of the study can be affirmed. In this study, secondary data will be used to help address the research questions. Sources of information used will include literature reviews, publications and peer-reviewed journals that cover lead exposure in children. Secondary research alludes to the process of data collection as a third party. This infers to collecting information that is already within the public domain. Online data sources will also help form part of secondary data. During the collection, the researcher will focus and put in more effort to ensure that the sources were credible and data was current. The secondary data is preferable because it is easy to collect than secondary data. This means that a lot of effort and expenses that would be incurred will be saved. Additionally, collecting data through secondary means that findings put together can be compared. Having the various data sources ensured that the researcher can make easy analysis.

As part of the primary data, there will be measurement of lead concentration. The measurement will be done among 1000 children. Measurement will be aided by the K-Shell X-Ray. Bone lead measurement is done at two main points, the mid-tibia shaft and patella. The mid-tibia shaft is largely made of cortical bone with half of many decades.

**Data Analysis**

To help in estimation of the lead in bone, ordinary least squares regression will be applied. Adjustment will be done for other predictors (Hu et al., 1996). The application of the least ordinary squares regression helped in determination of the link that was between the ages and the lead concentration in bones. The two main approaches applied included, “less than 5” for children below 5 years. “Above 5”, included the ages covering 6 years to approximately 13 years of age. During the analysis, each of the respondents in the study was given a specific age set. An analysis was adjusted for the other predictors. Some of them included race (white, non-white) which is linear continuous. The researcher created indicator variable for any missing data. The model for the analysis was tested using a likelihood ratio test using 13 degrees of freedom.

References

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