Indoor Air Pollutions and Autism Behavior Checklist: How are they Related?

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**Project title**

Indoor air pollutions and Autism behavior checklist: How they are related?

**Project summary**

Evidence shows that prenatal exposure to air pollution can up to double the chance that a child will develop Autism Spectrum Disorder (ASD). Air pollution is known to affect brain development and function. These include particulate matter, lead, manganese, mercury and methylene chloride. The women who lived in locations with the highest levels of particulate matters were twice as likely to have a child with autism as those who lived in areas with the lowest levels. Women exposed to the highest levels of other air pollutants were about 50 percent more likely to have a child with autism than those exposed to the lowest concentrations. More research is needed to figure out how this is happening.

The purpose of this study is to determine the effect of exposure to Particulate Matters 2.5 and volatile organic compounds (VOCs) on the *Autism Behavior Checklist* (ABC).

The objectives of this study is:

1) To determine the relationships between the levels of indoor air pollution and ABC
2) To determine the relationship between indoor activities and ABC
3) To determine the relationship between indoor air activities and ABC

ABC is a tool that is used to determine the behavior change in ASD. In this study we will measure the levels of PM 2.5 and VOCs constantly every minutes for three months in homes of five children ages 5-6. The faculty has the required equipment for this study and will select the families of ASD children.

**Student Prerequisite**

I am looking for a hard working student with nursing major and a GPA of 3.5 and above, who like to work with children.

**Student Duties**

During the work period the student will benefit from different parts of this project, including using new equipment, learning new assessment tool in nursing, training on research methodology, data collection, data analysis, and preparing report. In addition the student will be
exposed to a real life research environment beyond the classroom and laboratory experience. Here are the duties of the student:

1) Participate in training session on ABC, clinical data collection for autistics children, and use of VOCs and PM 2.5 measurements tools

2) Contact with the selected families with autistic child and interview them to obtain basic information

3) Set up the equipment in homes of the selected families and follow up with them

4) Train parents about activity logs that should be completed by parents

5) Collect ABC data every week

6) Conduct data entry in SPSS (statistical package for social sciences)

7) Help with data analysis and report preparation

**Mentor supervision**

Supervisor and the student will meet 2-3 days a week at the beginning of the research period for training purpose. Then the students should set regular schedule to meet with the families and follow up with them. It is expected that the student report to the faculty 2-3 times a week in regard to data collection progress. After completion of data collection the student will help with data entry and data analysis.