Attention Deficit Hyperactivity Disorder ADHD

Questions: You are interested to explore if arsenic exposure at baseline of the study is associated with Attention Deficit Hyperactivity Disorder (ADHD) in children after 5 years of the baseline. State the null and alternative hypothesis for examining this relationship. Identify three categorical and three continuous variables in the SPSS dataset and indicate whether they are the indicators of environmental exposure or biomarkers (biological/physiological indicators) or sociodemographic characteristics. Use a table to present your answers. This study has initially followed a cross-sectional design and later it became a prospective cohort study after collecting data on intellectual disability and ADHD outcomes among the participants. State the advantages that a prospective cohort study would offer as opposed to a cross-sectional study. Review your textbook to find the answers. We would like to estimate if there is an association between arsenic exposure in childhood and post-adolescence ADHD among the study participants. Draw the 2X2 table that will allow you to calculate the OR and RR by hand (just show the table; calculation is not necessary). Use the following two dichotomous (categorical) variables – i) “Arsenic Exposure Category” as the exposure or predictor variable; and ii) “ADHD” as the health outcome variable. Calculate OR and RR with p-values and 95% Confidence Intervals for showing the association between arsenic exposure in childhood and post-adolescence ADHD among the study participants. Use SPSS to compute OR and RR. For question 5, do you find p-values and 95% CI for both OR and RR statistically significant? Why or why not? Briefly explain your findings. Do you see any change in OR when you take the two confounding variables maternal education and sex (boys vs girls) into account at the same time while computing OR? How much is the change? Show the adjusted OR, corresponding p-value, and 95% CI. What is the objective of calculating adjusted OR for the relationship between arsenic exposure in childhood and post-adolescence ADHD? Using variables that are listed in the SPSS data file as examples, state three potential sources of the following random errors (give just one example for each of the following random errors): Poor precision Sampling error Variability in measurement Do boys and girls differ significantly for the following health outcomes? Conduct independent sample t-tests and state your findings (you can copy the results from SPSS).Body Mass Index (BMI) – show unit in the results TPO Antibody – show unit in the results Neurobehavioral test TAP preferred What external validity issue do you see in the Bangladesh Adolescent study (hints: internal or external validity.