AMERICAN STATISTICAL ASSOCIATION
HOUSTON AREA CHAPTER
NEWSLETTER
February 5, 2013

Tuesday, February 12, 2013
Identifying SNPs associated with Mediators in Genome-wide Association Studies: Application to Smoking Behavior and Lung Cancer

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A mediation model explores the direct and indirect effects between an independent variable and a dependent variable by including other variables (or mediators). Mediation analysis has recently been used to dissect the direct and indirect effects of genetic variants on complex diseases using case-control studies. However, bias could arise in the estimations of the genetic variant-mediator association because the presence or absence of the mediator in the study samples is not sampled following the principles of case-control study design. In this case, the mediation analysis using data from case-control studies might lead to biased estimates of coefficients and indirect effects. In this article, we investigated a multiple-mediation model involving a three-path mediating effect through two mediators using case-control study data. We propose an approach to correct bias in coefficients and provide accurate estimates of the specific indirect effects. Our approach can also be used when the original case-control study is frequency matched on one of the mediators. We conducted simulation studies to investigate the performance of the proposed approach, and showed that it provides more accurate estimates of the indirect effects as well as the percent mediated than standard regressions. We then applied this approach to the multiple-mediation study of the mediating effects of both smoking and chronic obstructive pulmonary disease (COPD) on the association between the CHRNA5-A3 gene locus and lung cancer risk using data from a lung cancer case-control study. The results showed that the genetic variant influences lung cancer risk indirectly through all three different pathways. The percent of genetic association mediated was 18.3% through smoking alone, 30.2% through COPD alone, and 20.6% through the path including both smoking and COPD, and the total genetic variant-lung cancer association explained by the two mediators was 69.1%.

HACASA meetings are open to the public! Please pass on copies of this announcement to colleagues and friends and post on appropriate bulletin boards.

WHEN and WHERE: ***Tuesday, January 15, 2013*** at Duncan Hall, Rice University
                        5:30pm - Social Time and with snacks & drinks: Room 1049
                        6:30pm – Talk (Room 1049)

Duncan Hall (also known as the Computational Engineering Building) is on the northeast side of the Rice University Campus. For parking information and directions please refer to the Rice parking websites, the following have been found helpful:
http://cohesion.rice.edu/campusservices/parktrans/parking/visitors.cfm
http://www.rice.edu/maps/maps.html

Thank you to **Rice University** and the **Department of Statistics at Rice University** for their generous support of HACASA by allowing us the use of their facilities for our gatherings, **and sponsoring FREE PARKING. See an officer for a voucher at the meeting.**

To help us cover cost of our weekly snacks, we are asking for small donations ($5 or more). Also, please RSVP so we can bring enough snacks and drinks. Please RSVP to Margaret Kuzynski at HoustonASA@gmail.com.

Introducing the officers!

The officers for the 2012-2013 academic year are:
President: Hao Liu (haol@bcm.edu)
President Elect: Becky Slack (RSSlack@mdanderson.org)
Past President: Jose-Miguel Yamal (Jose-Miguel.Yamal@uth.tmc.edu)
Secretary: Michael Swartz (Michael.D.Swartz@uth.tmc.edu)
Treasurer: Margaret Kuczynski (margaret.kuczynski@gmail.com)
Science Fair Coordinator: Erin Hodgess (HodgessE@uhd.edu)
ASA Chapter Representative: Becky Slack (RSSlack@mdanderson.org)

Reminder!

Membership dues: Students: $1, and non-students: $8.

Welcome New Members!

Please take a moment at this month's meeting to welcome new members!

Mark Your Calendars!

This year we are still meeting every month. In the Fall Semester (September through December) we will meet on the 2nd or 3rd **Wednesday** of each month, depending on the month. In the Spring (January through May), we return to the 2nd or 3rd **Tuesday** of the month, depending on the month The official dates and locations are below (all rooms are located in Duncan Hall on Rice University Campus):

Wednesday, September 12, 2012 (DH1049)
Wednesday, October 17, 2012 (DH1049) 3rd Wednesday of October
Wednesday, November 14, 2012 (DH 3092)
Wednesday, December 12, 2012 (DH 3092) Holiday Potluck
Tuesday, January 15, 2013 (DH1049) 3rd Tuesday of January
Tuesday, February 12, 2013 (DH1049)
Tuesday, March 12, 2013 (DH1049)
Tuesday, April 9, 2013 (DH1049)
Tuesday, May 14, 2013 (DH1049) (Science Fair Winners)

Let us know what you think!

Send comments to Michael Swartz at HoustonASA@gmail.com with the subject COMMENTS.
Or Send comments / additions / corrections concerning the HACASA newsletter to Michael Swartz at Michael.D.Swartz@uth.tmc.edu

Volunteers Needed to judge for the Houston Engineering and Science Fair, March 1, 2013
A note from Erin Hodgess, HACASA Science Fair coordinator:

Would you like to help budding statisticians while having fun? Then be a judge for HACASA at the Houston Engineering and Science Fair. It is on Friday, March 1 from 6 - 8 PM. We need about 6 judges for the 3 categories. The students enjoy it and we do as well. Please send an email to Erin Hodgess at hodgesse-at-uhd.edu if you would like to participate.

Thanks,
Erin

New Website is launched!
Our new website is launched! Please visit it for more information and announcements:
http://sites.google.com/site/houstonasa/
for comments and suggestions regarding content, please contact our website coordinator\maintainer: Margaret Kuczynski (margaret.kuczynski@gmail.com)

JOB POSTINGS

Opening at the Dan L. Duncan Cancer Center, Houston TX.

The Dan L Duncan Cancer Center Division of Biostatistics at Baylor College of Medicine (Houston) collaborates with investigators engaged in the molecular profiling of cancers at various levels of complexity (including somatic mutation, mRNA, microRNA, DNA copy number, and protein), with the overall goal of better understanding cancer biology and improving cancer diagnosis and treatment. For this position, we are looking for someone to assist in statistical analysis of high throughput molecular data, including integration of datasets from disparate sources. BS in statistics, MIS, or related field required. For more information contact: Dr. Chad Creighton <creighto@bcm.edu>. More information on the HACASA Website soon.

Opening at University of Texas El Paso

The Department of Mathematical Sciences at The University of Texas at El Paso invites applications for a tenure-track position at the Assistant/Associate Professor level starting fall 2013. The Department is seeking someone who will develop an independent research program in statistics and teach undergraduate and graduate courses in statistics. Opportunities exist to participate in consulting and collaborative research through the Statistical Consulting Laboratory www.statlab.utep.edu. More information on the HACASA website.