SOM B. BOHORA

Contact Developmental and Behavioral Pediatrics 225-454-5371

Information Department of Pediatrics som-bohora@ouhsc.edu

University of Oklahoma Health Sciences Center 940 NE 13th Street, Suite 4938 Oklahoma City,

OK 73117

Research Biostatistics & biomedical informatics

INTERESTS Algorithms and methods development for health care

Longitudinal analyses, AUC regression Statistical computing and simulation

Bayesian statistical inference Data visualization and graphics

FASD, HIV and Alcohol, child maltreatment, public health

EDUCATION University of Oklahoma Health Sciences Center, OK City, OK

M.S., Biostatistics, July 2014

• Thesis area: Generalization of semi-parametric AUC regression model with discrete covariates

Louisiana State University, Baton Rouge, LA

M.Ap.Stat., Master of Applied Statistics, August 2012

• Project area: Non-linear quantile and mixed-effects models

Louisiana State University, Baton Rouge, LA

M.S., Forest Science, May 2012

• Project area: Dendrochronology

Tribhuvan University, Nepal

B.S., February 2008

SCHOLARSHIP, AWARDS, & HONORS

- FASD Travel Award recipient for the 2016 Fetal Alcohol Spectrum Disorders Study Group at Research Society on Alcoholism (RSA) Scientific Meeting held in New Orleans, Louisiana June 25-29, 2016
- Above and Beyond Award recipient, Center on Child Abuse and & Neglect on April 10, 2015 Department of Pediatrics, College of Medicine, University of Oklahoma Health Sciences Center
- Above and Beyond Award recipient, Center on Child Abuse and & Neglect on December 5, 2014 Department of Pediatrics, College of Medicine, University of Oklahoma Health Sciences Center
- Excellence in Pediatric Research Day Presentation Award recipient on Pediatric Research Day held on May 16, 2014, Department of Pediatrics, College of Medicine, University of Oklahoma Health Sciences Center

- RSA Travel Award recipient for the 2014 Research Society on Alcoholism (RSA) Scientific Meeting held in Seattle, Washington June 21-25, 2014
- RSA Student Merit Award recipient for the 2014 Research Society on Alcoholism (RSA) Scientific Meeting held in Seattle, Washington June 21-25, 2014
- Sooner Heritage Tuition Scholarship recipient, University of Oklahoma Health Sciences Center, Oklahoma City, OK
- Outstanding MS student award recipient in recognition of high scholarship and outstanding achievement awarded by Gamma Sigma Delta chapter at Louisiana State University April 2012
- Outstanding Graduate Student Merit Honor Roll Award in recognition of high scholarship and outstanding achievement awarded by Gamma Sigma Delta chapter at Louisiana State University April 2012
- Honored member of Phi Kappa Phi, an academic honor society
- Honored member of Gamma Sigma Delta, an academic honor society 2011
- Honored member of Xi Sigma Pi, an academic honor society in Forestry 2009

PROGRAMMING $SAS^{\mathbb{R}}$ (about 6 years of experience)

- CERTIFICATION Certified Base Programmer for $SAS^{\mathbb{R}}$ 9
 - Applied Analytics Using $SAS^{\mathbb{R}}$ Enterprise Miner

R (more than 5 years of experience)

- R Programming by Johns Hopkins University on Coursera. Certificate earned on February 1, 2015 with **Distinction**
- Enrolled in online courses offered by "The Georgia R School"
- Certificate of Participation in "Learn R In-Depth" presented by Dr. Paul Geissler from USGS
- Enrolled in Data Science Specializations in Coursera that focuses on
- Completed R Training Path for R Programmer and Data Analysts in DataCamp
 - 1. Introduction to R
 - 2. Intermediate R
 - 3. Advanced R (In preparation from statistics.com)
- Enrolled in Statistical Learning from Stanford University online OpenEdx program
- Enrolled in Big Data University for big data analytics with R
- Enrolled in MITx: 15.071x The Analytics Edge (uses R)

EMPLOYMENT Research Biostatistician

EXPERIENCE

Department of Pediatrics University of Oklahoma Health Sciences Center Oklahoma City, OK

Duties and Responsibilities

- Responsible for collaborating with medical, public health and scientific researchers in study design, development of research instruments, collection, management and analysis of data, interpretation of results, preparation of reports, and publication of research
- Provided training to the section on research and statistical methods (Section Ongoing Methodology Initiative (SOMI))
- Worked on Behavioral and Biomedical Methodolgy Core (BBMC) related projects
- Tools used to perform duties: R, REDCap, R/RStudio, knitr, Revoultion R Enterprise, Python programming, Mplus, SAS, SAS Macros, SPSS, SQL and SQL server, Access, Git and GitHub software, office package
- Techniques and skills used: possion regression, ANOVA, logistic regression, mixed-effects model, categorical data analysis, Structural Equation model, latent class analysis, negative binomial regression, generalized estimating equations, multivariate methods, growth-curve modeling, quantile regression, latent transition analysis, regression discontinuity design, factorial design, predictive analytics, text analytics

Graduate Research Assistant (half-time), and half-time on project below (not paid) 05/17/2014 - 07/28/2014

Department of Pediatrics University of Oklahoma Health Sciences Center Oklahoma City, OK

Duties and Responsibilities

- Performed biostatistical duties on project entitled "Generalization of semi-parametric AUC regression model with discrete covariates"
- Tools used to perform duties: SAS, R, R/RStudio, knitr, Revoultion R Enterprise, SPSS, office package
- Techniques and skills used: possion regression, ANOVA, logistic regression, categorical data analysis, multiple regression, statistical computing for biostatistics, fetal acohol, clinical trials

Graduate Research Assistant

08/19/2013 - 07/28/2014

Department of Pediatrics University of Oklahoma Health Sciences Center Oklahoma City, OK

Duties and Responsibilities

- Applied biostatistical skills and knowledge to public health issues such as FAS/FASD, prevention, maternal alcohol use clinical trial and HIV/AIDS prevention trial, smoking etc.
- Provided biostatistical consulting to public health students and assisting faculty for data analysis and writing manuscript outside of GRA work (Latent trajectories analysis and quantile regression)
- Performed biostatistical duties on project called "Generalization of semi-parametric AUC regression model with discrete covariates"
- Tools used to perform duties: SAS, SAS Macros, R, Access, REDCap, R/RStudio, knitr, Revoultion R Enterprise, SPSS, SQL, office package
- Techniques and skills used: possion regression, ANOVA, logistic regression, mixed-effects model, growth-curve modeling, categorical data analysis, Structural Equation model, factor analysis, multivariate methods, latent trajectory analysis, quantile regression

Temporary full-time employee

05/13/2013 - 08/18/2013

Department of Pediatrics University of Oklahoma Health Sciences Center Oklahoma City, OK

Duties and Responsibilities

- Applied biostatistical skills and knowledge to public health issues such as FAS/FASD, prevention, maternal alcohol use clinical trial and HIV/AIDS prevention trial etc.
- Performed data management, biostatistical analyses, reporting, writing manuscripts related to public health problems such as FAS/FASD, prevention, maternal alcohol use clinical trial and HIV/AIDS prevention trial
- Provided biostatiscal reviewes on manuscripts for several journals related to public health
- Tools used to perform duties: SAS, SAS Macros, R, Access, REDCap, R/RStudio, knitr, Revoultion R Enterprise, SPSS, SQL, office package
- Techniques and skills used: possion regression, ANOVA, logistic regression, mixed-effects model, categorical data analysis, Structural Equation model, factor analysis, multivariate methods, latent trajectory analysis, quantile regression, fetal acohol, HIV/AIDS

Graduate Research Assistant

02/19/2013 - 05/12/2013

Department of Pediatrics University of Oklahoma Health Sciences Center Oklahoma City, OK

Duties and Responsibilities

• Applied biostatistical skills and knowledge to public health issues

- such as FAS/FASD, prevention, maternal alcohol use clinical trial and HIV/AIDS prevention trial, smoking etc.
- Performed data management, statistical analyses, reporting, writing manuscripts related to public health problems such as FAS/FASD, prevention, maternal alcohol use clinical trial and HIV/AIDS prevention trial
- Provided biostatiscal reviewes on manuscripts for several journals related to public health
- Worked on smoking, BMI, and public health related projects
- Tools used to perform duties: SAS, SAS Macros, R, Access, REDCap, R/RStudio, knitr, Revoultion R Enterprise, SPSS, SQL, office package
- Techniques and skills used: possion regression, ANOVA, logistic regression, mixed-effects model, categorical data analysis, Structural Equation model, factor analysis, multivariate methods, latent trajectory analysis, quantile regression, fetal acohol, HIV/AIDS

Graduate Research Assistant

08/20/2012 - 12/31/2012

College of Public Health University of Oklahoma Health Sciences Center Oklahoma City, OK

Duties and Responsibilities

- Applied biostatistical skills and knowledge to public health issues such as diabetes, smoking, public health issues
- Performed data management, statistical analyses, reporting in diabetes, maternal health, and public health
- Tools used to perform duties: SAS, SAS Enterprise Guide, SAS Macros, JMP, EndNote, excel, office package
- Techniques and skills used: possion regression, ANOVA, logistic regression, mixed-effects model, categorical data analysis

Graduate Teaching Assistant

01/10/2012 - 08/03/2012

Department of Experimental Statistics Louisiana State University Baton Rouge, LA

Duties and Responsibilities

- Taught undergraduate statistics labs and involved in departmental statistical consulting to the students from the Department of Pathology, Oceanography, engineering
- Worked a paper from the project on the use of quantile regression and mixed-effects model in a peer-reviewed journal
- Tools used to perform duties: SAS Enterprise Guide, excel, office

package

• Techniques and skills taught: descriptive statistics, t-tests, linear regression, ANOVA

Graduate Research Assistant

08/19/2008 - 12/31/2011

School of Renewable Natural Resources Louisiana State University Baton Rouge, LA

Duties and Responsibilities

- Worked on project that used multivariate analysis called Redundancy analysis and spatial techniques
- As a dual degree student with the Department of Experiential Statistics,
 I provided statistical consulting to few MS students
- Assisted in managing and analyzing the data
- Taught undergraduate labs
- Have a paper from the project in a review
- Tools used to perform duties: SAS, excel, office package, STATISTICA, PC-ORD, EndNote
- Techniques and skills used: descriptive statistics, linear and nonlinear regression, ANOVA, ANACOVA, logistic regression, multivariate statistics, nonparametric statistics, data mining

Publications & Theses

- Ridings, L.; Beasley, L.; Bohora, S.; Daer, J.; Owora, A.; Silovsky, J. Longitudinal Investigation of Depression, Intimate Partner Violence, and Supports among Vulnerable Families. Journal of Interpersonal Violence. (Accepted)
- 2. Smith, T., Glover, R., Whitworth, D., Campbell, C., **Bohora, S.**, Silovsky, J. Predictors of sexually intrusive behavior in children. (in preparation)
- 3. Balahcova, T; Chaffin, M.; Isurina, G.; Tsvetkova, L; Volkova, E.; Bohora, S.; Bonner, B. Efficacy of a Brief Intervention at Women's Clinics in Russia. An abstract published as speical issue: 38th Annual Scientific Meeting if the Research Society on Alcoholism, June 20-24, 2015 San Antonio, Texas. Vol 39.
- 4. **Bohora, S.** & Cao, Q. (2014). Prediction of Tree Diameter Growth Using Quantile Regression and Mixed-Effects Models. Forest Ecology and Management, 319(0), 62-66.
- 5. **Bohora**, S.; Zhao, Y.; & Balachova, T. Generalization of the semi-parametric AUC regression model with discrete covariates. (Submitted)
- 6. **Bohora, S.**; Balahcova, T; Shaboltas, A.; Nasledov, A.; Chaffin, M.; Batluk, Y.; Bonner, B.; Skitnevskaya, L.; Tsvetkova, L; Volkova,

- E. Analysis of HIV risk patterns among Russian women at-risk for AEP using Latent Class Analysis (in preparation)
- 7. Bohora, S.; A.; Chaffin, M.; Balahcova, Prevent FAS Research Group. Using Multilevel Latent Transition Analysis to Model Transitions of Alcohol Use Profiles in Women at Risk for Alcohol-Exposed Pregnancies (in preparation)
- 8. Balachova, T.; Sobell, L.; Agrawal, S.; Isurina, G.; Tsvetkova, L.; Volkova, E.; Bohora, S. 2015. Using a Single Binge Drinking Question to Identify Russian Women at Risk for an Alcohol-Exposed Pregnancy, Addictive Behaviors, 46(0), 53-57.
- 9. Balachova, T.; Shaboltas, A; Nasledov, A; Bohora, S. Using Structural Equation Modeling to Analyze HIV Risk and Alcohol Abuse Behaviors in Russian Women (in preparation)
- 10. Shay, C.; Bohora, S. & Bhandari, N. BMI trajectories for analyzing risk for cardiovascular disease: A CARDIA study (in preparation)
- 11. Balachova, T. & Bohora, S.... Evaluating the effects of informational brochures on knowledge, attitudes, and alcohol consumption in childbearing age women in Russian (in preparation)
- 12. Balachova, T. & Bohora, S.... Evaluating the perception of FASD informational brochures among childbearing age women in Russia: Summary from a randomized controlled trial (in preparation)
- 13. Bohora, S. 2012. Using Quantile Regression to Predict Tree Diameter and Height Growth. A Project Report Submitted to the Department of Experimental Statistics, the Louisiana State University and Agricultural and Mechanical College, USA

Poster. MEETINGS Oral presentation

- Oral Talk & Bohora, S.; Chaffin, M.; Balachova, T.; an dPrevent FAS Group. Using Multilevel Latent Transition Analysis to Model Transitions of Alcohol Use Profiles in Women at Risk for Alcohol-Exposed **Pregnancies** presented at Fetal Alcohol Spectrum Disorders Study Group at Research Society on Alcoholism (RSA) Scientific Meeting held in New Orleans, Louisiana June 25-29, 2016
 - Bohora, S. Learning Python Programming Language in Interactive Computing Framework presented in 'Statistical Computing Users' Group meeting, University of Oklahoma Health Sciences Center, Oklahoma City March 2016
 - Bohora, S., Balachova, Bonner, B., Tsvetkova, L., Volkova, E. Does the Effect of FASD Education Brochures on Women's Alcohol Consumption Differ among Smokers and Non-smokers? Presented at the FASD Study Group Session at the 38th Annual RSA Scientific Meeting in San Antonio, TX June 2015

- Bohora, S.; Zhao, D. Extending Semiparametric AUC Model with Discrete Covariates into General Framework presented in 'Statistical Computing Users' Group meeting, University of Oklahoma Health Sciences Center, Oklahoma City
 April 2015
- Bohora, S. Using knitr with logistic multilevel models and decision support trees presented in 'Statistical Computing Users' Group meeting, University of Oklahoma Health Sciences Center, OK February 2015
- Bohora, S. & Zhao, D. (presenter). Generalization of the Semiparametric AUC Regression Model with Discrete Covariates submitted to Joint Statistical Meetings 2015 organized in Seattle, WA August 2015
- Bohora, S. & Zhao, D. (presenter). General Semiparametric AUC Regression Model with Discrete Covariates invited talk at the Department of Mathematical Sciences, University of Memphis, Memphis, TN

 April 2015
- Bohora, S. Generalization of the Semiparametric AUC
 Regression Model with Discrete Covariates presented at the
 OUHSC College of Public Health, Bistatistics and Epidemiology Seminar
 Series,
 November 19, 2014
- Balachova, T.; Bohora, S. A Randomized Clinical Trial in Russia: Politics and Mark's Beautiful Mind presented at the Section Research Meeting, Section of Developmental & Behavioral Pediatrics, OUHSC Department of Pediatrics August 22, 2014
- Bohora, S. Dealing with simple 2x2 tables using SAS PROC FREQ, presented in SAS/R Users' Group meeting, University of Oklahoma Health Sciences Center, Oklahoma City August 2013 Poster
- Bohora, S., Balachova, T., Shaboltas, A., Nasledov, A, Chaffin, M., Batluk, Y., Bonner, B., Skitnevskaya, L., Tsvetkova, L., Volkova, E. "Analysis of HIV Risk Patterns among Russian Women At-risk for AEP Using Latent Class Analysis". A poster presented at the 38th Annual RSA Scientific Meeting in San Antonio, TX. June 2015
- Balachova, T., Shaboltas, A., Nasledov, A, Chaffin, M., Bohora, S., Batluk, Y., Bonner, B., Skitnevskaya, L., Tsvetkova, L., Volkova, E. "Using Structural Equation Modeling to Analyze HIV Risk and Alcohol Abuse Behaviors in Russian Women". A poster presented at the 38th Annual RSA Scientific Meeting in San Antonio, TX. June 2015
- Bohora, S., Zhao, D., Balachova, T. Extending Semiparametric

AUC Model with Discrete Covariates into General Framework.

Poster accepted at The 4th Workshop on Biostatistics and Bioinformatics, Department of Mathematics and Statistics, Georgia State University, Atlanta, GA May 2015

- Bard, D. (presenter), Hecht, D., Beasley, W., **Bohora, S.**, & Peters, A. "Using Predictive Analytics for Systems-level Targeting of Child Welfare Prevention Services". A poster submitted to American Psychological Association Annual Convention in Toronto, Canada August 2015
- Balachova, T., Bohora, S., Bonner, B., Chaffin, M., Isurina, G., Tsvetkova, L., Volkova. "Formatting health messages to prevent fetal alcohol exposure and brain damage in children: A study from Russia". A poster presented at "37th Annual RSA Scientific Meeting and 17th Congress of ISBRA, in Bellevue, WA.
- Bohora, S., Balachova, T., Bonner, B., Chaffin, M., Isurina, G., Tsvetkova, L., Volkova. "Formatting health messages to prevent fetal alcohol exposure and brain damage in children: A study from Russia". A poster presented at "Oklahoma Center for Neuroscience: The developing brain" symposium.
- Balachova, T., Bonner, B., Chaffin, M., Isurina, G., Tsvetkova, L., Volkova, E., Agrawal, S., Bohora, S. "Dual-focused brief physician intervention to reduce the risk for alcohol-exposed pregnancies: A randomized controlled trial"

Meetings/workshops attended

- "2013 National Alliance for Drug Endangered Children Conference in collaboration with 21st Oklahoma Conference on Child Abuse & Neglect organized at Cox Convention Center, Oklahoma City, OK November 18-20, 2013
- One-day workshop on "Structural Equation Modeling" organized at LSU, Baton Rouge, LA (led by Dr. James B. Grace) April 2010
- "Multivariate Data Analysis using PC-ORDTM" organized at USGS Utah water science center, Salt Lake City, Utah February 2010

ABSTRACTS

• Bohora, S., Balachova, T., Bonner, B., Chaffin, M. "Formatting health messages to prevent fetal alcohol exposure and brain damage in children"

August 2013

JOURNAL PAPERS REVIEW Ad hoc Reviewer

• Participated in review of submitted manuscript for peer-reviewed 'BioMed Central Pregnancy and Childbirth' July 2014

- Participated in review of submitted manuscript for peer-reviewed 'Journal of European Child and Adolescent Psychiatry' August 2013
- Participated in review of submitted manuscript for peer-reviewed 'Journal of Alcoholism: Clinical and Experimental Research' 2013
- Participated in review of submitted manuscript for peer-reviewed 'Scandinavian Journal of Psychology' May 2013
- Participated in review of submitted manuscript for peer-reviewed 'Journal of The International Journal of Alcohol and Drug Research' May 2013

PROFICIENCY

Oral English • Received a Graduate Teaching Certificate from Department of English, Louisiana State University (LSU) Summer 2010

MEMBERSHIP

- Professional Institute of Mathematical Statistics (IMS) since 2011
 - American Statistical Association (ASA) since 2010
 - Statistical Modelling Society (SMS) since 2010
 - Member, OUHSC Biostatistics and Epidemiology Student Association (BSESA) 08/2012 - 07/14
 - Vice-president, OUHSC Biostatistics and Epidemiology Student Association (BSESA) 08/13 - 07/14
 - Member, Statistical Computing Users' Group (SCUG), Oklahoma City, OK

SOFTWARE

- PROGRAMMING SAS® 9.2 Programming (proficient)
- & STATISTICAL $SAS^{\mathbb{R}}/SQL$; $SAS^{\mathbb{R}}$ Macro Language; $SAS^{\mathbb{R}}/IML$, $SAS^{\mathbb{R}}/STAT$
 - SAS Enterprise Guide 4.2 and $SAS^{\textcircled{R}}$ Enterprise Miner
 - R 3.1.2 for Statistical computing (proficient)
 - Revolution R Enterprise for big data analytics (RevoR)
 - Git & GitHub, a local or remote version control software
 - Python programming
 - C, C^{++} , VB.NET, C#, Java, Perl
 - SQL & MySQL programming
 - Mplus for statistical modeling
 - LATEX- A document preparation system
 - LyX the ducument processor
 - SPSS (Statistical Packages for the Social Sciences)
 - MATLAB
 - JMP 8 for Statistical Analysis
 - STATISTICA, a statistics and analytics software package
 - $ArcGIS^{(\mathbb{R})}$ 9, $ArcMap(\mathbb{R})$ version 9.3
 - CANOCO for Windows Version 4.5
 - PC-ORD version 5.31, software for multivariate statistical analysis
 - Citation Management: EndNote

• MS-Office Package, Adobe Photoshop

IDE

- RStudio, powerful and productive user interface for R
- RCommander (knitr is embedded within it)
- Visual Studio for C#, VB.NET, C^{++}
- Visual Studio code
- Eclipse IDE for Python, Java, C, C#, C^{++} , R, and more
- PyDev & Pycharm IDEs for Python
- CLion for C^{++}
- IntelliJ IDEA for Java
- ReSharper, a productivity tool for Visual Studio

BIG DATA Analytics

• RHadoop, rhdfs, rhbase, rmr2, plyrmr (R packages)

Databases

- SQL Server 2012 (T-SQL)
- SQL, MySQL, SQLite3
- MS Access
- ETO, Qualtrics, Survey Monkey, D2L, Moodle
- REDCapTM(Research Electronic Data Capture) & REDCapR (a package to communicate with REDCap from R)

Web

• HTML5, CSS3, JavaScript, PHP, MySQL

DEVELOPMENT

& Graphics

- VISUALIZATION ggplot2, ggvis, rgl (3D), plotrix, googleVis, dygraphs (for time series
 - Tableau for interactive data visualization
 - Shiny, a web application framework for R

MUNGING AND • RODBC, RMySQL, xlsx, foreign

Manipulation • plyr, dplyr, reshape, tidyr, stringr, lubridate, car, Hmisc, sqldf, family of apply functions

REPORTING

• shiny, knitr, Markdown, R Markdown, Sweave, R Presentation

References Tatiana Balachova, PhD

Associate Professor 405-271-8858 Ext 42106

Center on Child Abuse and Neglect tatiana-balachova@ouhsc.edu

Section of Developmental & Behavioral Pediatrics

Department of Pediatrics

University of Oklahoma Health Sciences Center, Oklahoma City, OK

David Bard, PhD

Associate Professor 405-271-8858 Ext 45141

Center on Child Abuse and Neglect david-bard@ouhsc.edu

Section of Developmental & Behavioral Pediatrics

Department of Pediatrics

University of Oklahoma Health Sciences Center, Oklahoma City, OK

Jane Silovsky, PhD

Professor 405-271-8858 Ext 42121

Center on Child Abuse and Neglect jane-silovsky@ouhsc.edu

Section of Developmental & Behavioral Pediatrics

Department of Pediatrics

University of Oklahoma Health Sciences Center, Oklahoma City, OK

Michael Anderson, PhD

Assistant Professor 405-271-2229 Ext 50498

Biostatistics & Epidemiology michael-anderson@ouhsc.edu

College of Public Health

University of Oklahoma Health Sciences Center, Oklahoma City, OK

Michael Hunter, PhD

Assistant Professor 405-271-8858 Ext 42725

Center on Child Abuse and Neglect mhunter@ou.edu

Section of Developmental & Behavioral Pediatrics

Department of Pediatrics

University of Oklahoma Health Sciences Center, Oklahoma City, OK

Quang V. Cao, PhD

Professor 225-578-4218

School of Renewable Natural Resources qcao@lsu.edu

Louisiana State University, Baton Rouge, LA

James P. Geaghan, PhD

Professor and Department Head 225-578-8303

Department of Experimental Statistics jgeaghan@lsu.edu

Louisiana State University, Baton Rouge, LA