

Determinants of Developmental Outcomes in Canadian Children

Adefowope Oduyungbo, Dillon Browne,
Noori Akhtar-Danesh, Lehana Thabane

Adefowope Oduyungbo

“Ade” collaborated with Dillon Browne in the analyses of his longitudinal study of “Determinants of Developmental Outcomes in Canadian Children” described on Page 5. Having compared several ways of conducting the analysis, Ade’s paper on this comparative statistical methodology was invited for presentation at the 7th Annual Hawaii International Conference on Statistics, Mathematics and Related Fields, Hawaii, U.S.A, 2008.

Born in Nigeria, last of 7 children. Primary, secondary and undergraduate education in Nigeria. BSc Statistics (2003) from Obafemi Awolowo University. MSc Statistics (2006) from University of Calgary. Currently a PhD (Biostatistics) candidate in the department of Clinical Epidemiology and Biostatistics at McMaster University under the supervision of Lehana Thabane (PhD).

Primary research focus is on statistical/methodological issues relating to longitudinal studies in the health sciences, especially in HIV research. Currently evaluating the validity of different non-invasive ultrasound methods used for assessing the global extent/progression of cardiovascular disease in HIV patients. Working

on a meta-analysis to investigate the impact of anti-retroviral therapy on cardiovascular diseases in HIV patients.

Favorite past time is singing and leading a gospel rock band in his home church and he would like to tour with his band. Also enjoys biking; all manner of dancing; hiking; watching funny movies/comedy sketches; and excellently prepared native delicacies.



(Continued on Page 5)

Be The Change

Inside this issue:

Assertive Community Treatment	2
Parenting Practices and Psychological Outcomes in Canadian Children	3
Measuring Integration Among Service Programs and Providers	4
Determinants of Developmental Outcomes in Canadian Children (Continued)	5
Thoughts from Director, Gina Browne	6



Funded by Ontario Ministry of Health and Long-Term Care

New Interdependencies, New Perspectives, New Insights

Assertive Community Treatment (ACT)

Lindsey George, Sean Kidd, Gina Browne, Helen Kirkpatrick, John Sylvestre

Assertive Community Treatment (ACT) has become widely regarded as an effective, multidisciplinary team approach for engaging and providing treatment for persons with severe mental illness in community settings. Controlled studies have suggested that ACT is an effective means of increasing community tenure and reducing hospital use, reducing symptoms, and improving quality of life. The aspect of ACT that has facilitated, structurally, the relatively uniform delivery across multiple service settings are the clear criteria for the implementation of ACT. Having clear standards against which fidelity can be determined has likewise facilitated research into ACT and the establishment of ACT as an evidence-based practice. With over 70 teams, Ontario has one of the largest concentrations of ACT teams in any jurisdiction in the world.

With funding from the Ontario Mental Health Foundation, Drs. Lindsey George and Sean Kidd have embarked on the largest scale study of ACT undertaken to date. While ACT has been established as an evidence-based practice, the mechanisms of effectiveness have remained

understudied and unclear. Drs. George and Kidd, using data gathered from 67 teams, have collected data on fidelity to the ACT model, degree of recovery-oriented service provision, and client outcomes. Analyses of the data are

underway, with preliminary findings suggesting the fidelity to the ACT model as it is currently operationalized may not be fully capturing all dimensions of clinically effective practice. The findings suggest that, while Ontario teams generally have good fidelity and are recovery-oriented, there is room to grow with respect to better identifying the key compo-



nents of ACT that make it an effective intervention and to develop means of monitoring and providing feedback to teams at a provincial level. Drs. George and Kidd will be using their findings to inform the ACT community at an international level and to inform policy development in Ontario.

Lindsey George



Lindsey George is an Assistant Professor in the Department of Psychiatry and Behavioural Neurosciences and a member of the System-Linked Research Unit, McMaster University.

Lindsey's research and clinical interests are in the areas of community mental health for people with serious mental illness, specifically supported housing, assertive community treatment, wellness and community integration.



New Contributions

Parenting Practices and Psychological Outcomes in Canadian Children

Dillon Browne, Adefowope Oduyungbo,
Lehana Thabane, Carolyn Byrne

Title: Beyond main effects: Analysis of parenting practices and psychological outcomes from the Canadian National Longitudinal Survey of Children and Youth (NLSCY)

Background: Research has shown a strong association between parenting practices and childhood psychopathology. There is a continued need for high quality longitudinal investigations that examine the complexities of this relationship and, specifically, the factors that moderate these effects. The moderating role of gender is of particular interest, due to the marked gender differences in childhood psychopathology.

Methods: The current investigation examines the complex and interactive associations between family-level variables, gender and child psychological development. Using generalized estimat-

ing equations (GEE), three parenting dimensions (hostile-ineffective parenting, parental consistency, positive interaction) were free to interact with themselves in addition to measures of gender, age, time, family functioning, maternal depression and family structure to predict externalizing (physical aggression-conduct disorder, indirect aggression, hyperactivity-inattention), internalizing (emotional disorder-anxiety) and positive (prosocial) behaviour in children. A sample of 1058 four to eleven year olds from the original longitudinal cohort of the National Longi-



tudinal Survey of Children and Youth (NLSCY) were selected for analysis. Only children with non-missing data were included. The sample was weighted using longitudinal weights provided by
(Continued on Page 4)

Dillon Browne



Dillon Browne is a 4th year student at the University of Guelph. He is currently completing his Honours BA, with a major in Psychology and minor in Family and Child Studies. His research interests are developmental psychopathology and mental health, and how these processes are interconnected with family level processes such as parenting.

He is currently a deemed employee of Statistics Canada and is conducting investigations with data from the National Longitudinal Survey of Children and Youth. One study is examining how the relationships between parenting dimensions and various forms of psychopathology in children are moderated by gender, family structure, family functioning, maternal depression and other concurrent parenting practices. Another study is examining the differential rela-

tionships between psychological problems, positive behaviours and parenting practices on the utilization of health services in adolescents. He has also worked on a project examining the role of social support in predicting family's adjustment to the struggles associated with their children's disabilities.

Dillon is currently completing his honours thesis, which illustrates the construction of an instrument to measure interpersonal problems in children as young as nine. He works as a research assistant, experimenter and also works at the Center for Students with Disabilities at the University of Guelph. He is also a volunteer mentor with Trellis Mental Health and Developmental Services. In the fall of 2009, Dillon plans to pursue graduate studies in Clinical Psychology.

A New Generation

Measuring Integration Among Service Programs and Providers

Chenglin Ye, working with Lehana Thabane, created the statistical method for capturing the degree of agreement between agencies'/providers' observed collaboration and expected collaboration in the Browne, et al., 2007 Measure of Integration.

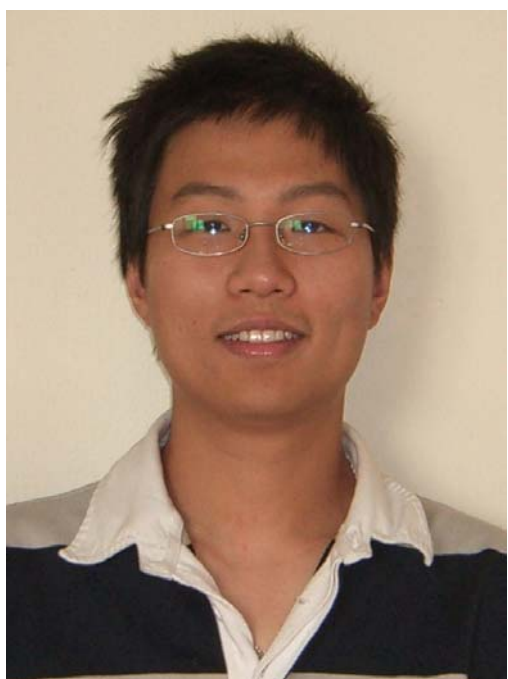
This is providing a way of linking four measures of human

services integration and examining the sensitivity of conclusions to the different statistical methods.

All of this effort to establish the inter-relationship among variables that measure aspects of service integration is original to the field.

New Contributions

Chenglin Ye



Chenglin Ye received his honours B.Sc. in Science from McMaster University, and is currently doing his M.Sc. in statistics at the Department of Mathematics and Statistics of McMaster University. He is also working as a research assistant in the Biostatistics Unit at St. Joseph's Healthcare Hamilton under the supervision of Dr. Lehana Thabane. On the job, he provides analytical support to different health professionals, applies quantitative methods and conducts statistical analyses.

His research focuses on developing new statistical methodology in health research. In particular, his research includes regression model, multivariate analysis, clinical trials,

experimental design, survival analysis, cost-effective analysis, time-series and stochastic process.



Parenting Practices and Psychological Outcomes in Canadian Children

(Continued from Page 3)

Methods (Continued): the NLSCY, yielding a weighted sample size of 795,860. Main effects were analyzed and backward elimination was used to remove all non-significant interactions.

Results: For all outcome variables, except prosocial behaviour, parenting constructs interact with child variables, parenting variables, and family-level factors to predict child development. Congruent with predictions, the most commonly observed moderator variable was gender.

Conclusions: Our overall hypothesis was supported suggesting that main effect interpretations of the relationships between

parenting and psychopathology are oversimplified. Dimensions of parenting interact with other factors to predict psychological outcomes in children. Researchers, practitioners, parents and the public should pay special attention to the role of gender when conceptualizing this dynamic relationship.

Reference: Browne, D., Oduyungbo, A., Thabane, L., Byrne, C. Beyond main effects: Analysis of parenting practices and psychological outcomes from the Canadian National Longitudinal Survey of Children and Youth (NLSCY). Submitted for publication, 2008.

Assertive Community Treatment (ACT)

Sean Kidd

Sean Kidd's primary area of research interest lies in the examination of resilience among marginalized persons. Much of his work to date has focused on suicidality, resilience, and intervention development among homeless youth. His current research centres primarily on service development for persons with severe mental illness. He is engaged in studies examining various aspects of recovery-oriented service delivery, Assertive Community Treatment, humour and resilience, and mental

health service delivery for gay, lesbian, and transgender persons with severe mental illness.

He is an Assistant Professor with the McMaster University Department of Psychiatry and Behavioural Neurosciences, an Assistant Clinical Professor with the Yale Department of Psychiatry, and is the staff Psychologist with St. Joseph's Healthcare, Hamilton, Mental Health Rehabilitation Services.



Determinants of Developmental Outcomes in Canadian Children

(Continued from Page 1)

Title: Comparison of Generalized Estimating Equations and Quadratic Inference Functions Using Data from the National Longitudinal Survey of Children and Youth (NLSCY) Database, presented to the 7th Annual Hawaii International Conference on Statistics, Mathematics and Related Fields, 2008.

Background & Methods: This is a comparative study between GEE (Generalized estimating equations) and QIF (Quadratic inference functions) using data from the "National Longitudinal Study of Child and Youth" (NLSCY) database. The survey data collected since 1994 is designed to evaluate the determinants of developmental outcomes in Canadian children. The authors modeled the relationship between hyperactivity-inattention and gender, age, family functioning, maternal



depression symptoms, household income adequacy, maternal immigration status and maternal educational level using GEE and QIF. Basis for comparison include: 1) ease of model selection; 2) sensitivity of results to different working correlation matrices, and 3) efficiency of parameter estimates.

Results: The sample included 795,858 respondents (50.3% male; 12% immigrant; 6% from dysfunctional families). QIF analysis reveals that gender (male) (Odds ratio (OR) = 1.73; 95% confidence interval (CI) = 1.10 to 2.71), family dysfunction (OR = 2.84, 95% CI of 1.58 to 5.11), and maternal depression (OR = 2.49, 95% CI of 1.60 to 2.60) are significantly associated with higher odds of hyperactivity-inattention. The results remained robust under GEE modeling. Model selection was facilitated in QIF using a goodness-of-fit statistic. Overall, estimates from QIF were more efficient than those from GEE using AR (1) and Exchangeable working correlation matrices (Relative efficiency = 1.1117; 1.3082 respectively).

Conclusion: QIF is useful for model selection and provides more efficient parameter estimates than GEE. QIF can help investigators obtain more reliable results when used in conjunction with GEE.

Reference: Odueyungbo, A., Browne, D., Akhtar-Danesh, N., Thabane, L. Comparison of generalized estimating equations and quadratic inference functions using data from the National Longitudinal Survey of Children and Youth (NLSCY) database. *BMC Medical Research Methodology*, 2008, 8:28.

New Contributions

Gina Browne: More Thoughts on “Interdependence”

Our second generation System-Linked Research Unit on Health and Social Service Utilization II continues to work synergistically with partner service agencies, investigators, provincial decision-makers. Once before we mentioned:

“Synergism is the new wealth. Pooled resources make everyone richer; pooled information makes everyone smarter. Nothing is lost in the dispersal.”

(M. Ferguson,
The Aquarian Conspiracy)

In this second generation Research Unit, we’ve expanded to create interdependencies among our students: psychology and nursing students (and faculty) are teamed with students (and faculty) from biostatistics. Psychology and nursing investigators benefit from this new found wealth. Statistical investigators see their knowledge come alive in real world problems and learn to speak in an everyday language. These interdependencies between diverse students multiplies their learning. Untapped resources and opportunities are combined. The value of a diversity of perspectives creates new insights that would not have been realized using any one perspective alone. Students learn they are not a problem to be managed. They are an untapped resource now realized!

“Balance is achieved not by compromise but by simultaneous and complementary assertion of a blending of perspectives”

(D. Limerick and B. Cunnington,
Managing the New Organization)

Yes, They Can!

“Discovery consists not of finding new landscapes but of having new eyes.”

(Proust)

QUESTIONS?

Please contact us:

McMaster University

Faculty of Health Sciences

System-Linked Research Unit

75 Frid Street, Hamilton, ON L8P 4M3

Telephone: 905-525-9140, ext. 22293

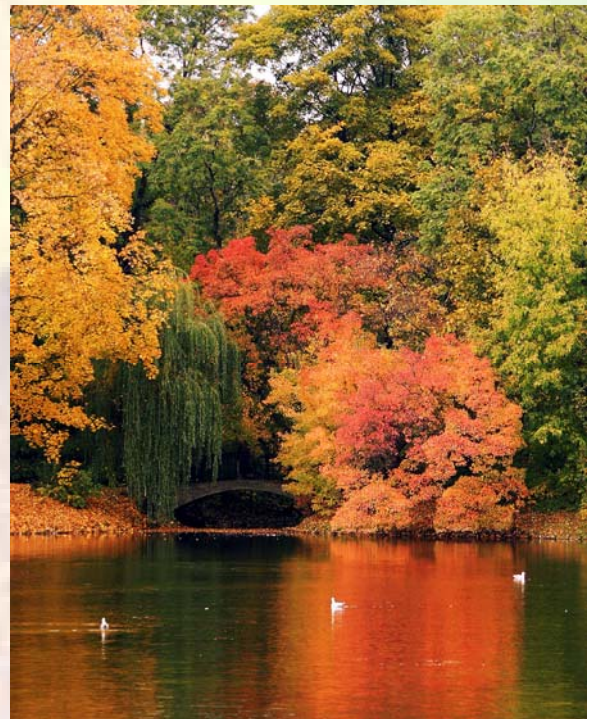
E-mail: Gina.Browne@mcmaster.ca

Web: <http://www.fhs.mcmaster.ca/slru/home.htm>



“It is necessary: therefore, it is possible.”

(G.A. Borghese
The Aquarian Conspiracy)



WE HOPE YOU HAVE ENJOYED THIS ISSUE OF OUR SYSTEM-LINKED RESEARCH UNIT NEWSLETTER