
LORI MCLEOD, PhD

Head, Psychometrics and Executive Director of Patient-Centered Outcomes Assessment

Education

PhD, Quantitative Psychology, University of North Carolina, Chapel Hill, NC

MA, Quantitative Psychology, University of North Carolina, Chapel Hill, NC

BS, Statistics, Mathematics Education (graduated summa cum laude), North Carolina State University, Raleigh, NC

Summary of Professional Experience

Lori McLeod, PhD, is Head of Psychometrics and Executive Director of Patient-Centered Outcomes Assessment at RTI-HS. Dr. McLeod is a psychometrician with more than 20 years of measurement experience, including expertise in instrument development and validation, as well as experience developing appropriate health outcome strategies. In her Psychometrics role, she has conducted many psychometric evaluations of both paper-and-pencil and computer-administered instruments. These investigations have included the assessment of scale reliability, validity, responsiveness, and work to define responder thresholds. In addition, Dr. McLeod has experience conducting and analyzing data from clinical trials and observational studies, including data to document burden of disease and treatment benefit. Dr. McLeod has published numerous related manuscripts in *Quality of Life Research*, *Value in Health*, *Pharmacoeconomics*, *Mayo Clinic Proceedings*, and *Psychometrika*, and currently serves as a co-editor for *Value in Health*. She has experience in a wide variety of therapeutic areas, including chronic pain, dermatology, oncology, psychiatry, respiratory, sleep disorders, urology, gastroenterology, and sexual dysfunction. Dr. McLeod also serves as an adjunct faculty in the Department of Health Policy and Management at the University of North Carolina at Chapel Hill.

Employment Chronology

2013 to present	Adjunct Associate Professor	University of North Carolina Department of Health Policy and Management Chapel Hill, NC
2007 to present	Head, Psychometrics and Executive Director of Patient- Centered Outcomes Assessment	RTI Health Solutions RTI International
2003 to 2006	Director, Psychometrics	RTI Health Solutions RTI International
2001 to 2002	Senior Psychometrician	RTI Health Solutions RTI International
2000 to 2001	Research Psychologist/ Statistician	Statistics Research Division RTI International Research Triangle Park, NC
1998 to 2000	Research Scientist	Law School Admission Council Newtown, PA
1995 to 1998	Harold Gulliksen Psychometric Fellow	Educational Testing Service Princeton, NJ

1994 to 1995	Research Assistant	University of North Carolina L.L. Thurstone Psychometric Laboratory Chapel Hill, NC
1991 to 1998	Research Assistant	Testing and Accountability Section Department of Public Instruction Raleigh, NC
1992 to 1993	High School Mathematics Teacher	Wake County Schools Raleigh, NC

Honors

Brenda H. Loyd Outstanding Dissertation Award, National Council on Measurement in Education, 1999

Harold Gulliksen Psychometric Fellowship, Educational Testing Service, September 1995 to May 1998

Statistics Student of the Year, North Carolina State University, 1992

Professional Associations

International Society for Quality of Life Research, co-leader for Psychometrics Special Interest Group, 2011 to 2014

American Orthopaedic Society for Sports Medicine, member of the Outcome Measures Consensus Task Force, 2010 to date

Psychometric Society, Office of Treasurer, 2000 to 2007

Drug Information Association

International Society for Pharmacoeconomics and Outcomes Research

Publications

Elewski BE, Fox T, Gnanasakthy A, Mallya UG, McLeod L, Mollon P, et al. Psoriasis patients with Psoriasis Area and Severity Index (PASI) 90 response achieve greater health-related quality-of-life improvements than those with PASI 75-89 response: results from two phase 3 studies of secukinumab. *J Dermatolog Treat.* 2017 [in press]

Mercieca-Bebber R, Rouette J, Calvert M, King M, McLeod L, Holch P, et al. Preliminary evidence on the uptake, use and benefits of the CONSORT-PRO extension. *Qual Life Res.* 2017 Feb 7. [Epub]

Gottlieb A, Strober B, Lebwohl M, Kaufmann R, Pariser D, ..., McLeod L, et al. Greater efficacy with secukinumab treatment is associated with greater psoriasis symptom relief: results from secukinumab clinical trial data. *JPPA.* 2017 [in press]

Strober B, Gottlieb AB, Sherif B, Mollon P, Gilloteau I, McLeod L, et al. Secukinumab sustains early patient-reported outcome benefits through 1 year: Results from 2 phase III randomized placebo-controlled clinical trials comparing secukinumab with etanercept. *J Am Acad Dermatol.* 2017 Jan 10;pii:S0190-9622(16)31159-8. [Epub ahead of print]

Strober B, Sigurgeirsson B, Popp G, Sinclair R, Krell J, ..., McLeod LD, et al. Secukinumab improves patient-reported psoriasis symptoms of itching, pain, and scaling: results of two phase 3, randomized, placebo-controlled clinical trials. *Int J Dermatol.* 2016 Apr;55(4):401-7.

McLeod LD, Cappelleri JC, Hays RD. Best (but oft-forgotten) practices: expressing and interpreting associations and effect sizes in clinical outcome assessments. *Am J Clin Nutr.* 2016 Mar;103(3):685-93.

Strober B, Zhao Y, Tran MH, Gnanasakthy A, Nyirady J, ..., McLeod LD, et al. Psychometric validation of the Psoriasis Symptom Diary using Phase III study data from patients with chronic plaque psoriasis. *Int J Dermatol.* 2016 Mar;55(3):e147-55.

Williams V, McLeod L, Nelson L. Advances in the evaluation of longitudinal construct validity of clinical outcome assessments. *Ther Innov Regul Sci.* 2015 Nov;49(6):805-12.

Petrillo J, Cano SJ, McLeod LD, Coon CD. Using classical test theory, item response theory, and Rasch measurement theory to evaluate patient-reported outcome measures: a comparison of worked examples. *Value Health.* 2015 Jan;18(1):25-34.

Deal LS, Sleeper-Triplett J, DiBenedetti DB, Nelson L, McLeod L, Haydysch EE, et al. Development and validation of the ADHD Benefits of Coaching Scale (ABCS). *J Atten Disord.* 2015 Mar;19(3):191-9

Hartman EE, Pawaskar M, Williams VSL, McLeod L, Dubois D, Benninga MA, et al. Psychometric properties of the PedsQL generic core scales for children with functional constipation in the Netherlands. *J Pediatr Gastroenterol Nutr.* 2014 Dec;59(6):739-47.

Mohr P, Harries M, Grange F, Ehness R, Benajmin L, Siakpere O, ..., McLeod L, et al. Treatment patterns and disease burden of stage IIIB/IIIC melanoma in France, Germany and the UK. *Ann Oncol.* 2014 Oct;25(Suppl 4):iv389.

Webb SM, Ware JE, Forsythe A, Yang M, Badia X, Nelson LM, ..., McLeod L, et al. Treatment effectiveness of pasireotide on health-related quality of life in patients with Cushing's disease. *Eur J Endocrinol.* 2014 Jul;171(1):89-98.

McLeod L. Review of the Task Force Report on PRO data collection in clinical trials using mixed modes. *Value Health.* 2014 Jul;17(5):491-2.

Chen WC, McLeod LD, Nelson LM, Williams VS, Fehnel SE. Quantitative challenges facing patient-centered outcomes research. *Expert Rev Pharmacoecon Outcomes Res.* 2014 Jun;14(3):379-86.

Coles T, Coon C, DeMuro C, McLeod L, Gnanasakthy A. Psychometric evaluation of the Sheehan Disability Scale in adult patients with attention-deficit/hyperactivity disorder. *Neuropsychiatr Dis Treat.* 2014 May 19;10:887-95.

Strober B, Zhao Y, Tran MH, Gnanasakthy A, Nelson LM, McLeod LD, et al. Psychometric evaluation of the psoriasis symptom diary using phase 3 trial data. *Value Health.* 2014 May;17(3):A288.

Martin S, Coon C, McLeod L, Chandran A, Arnold L. Evaluation of the fibromyalgia diagnostic screen in clinical practice. *J Eval Clin Pract.* 2014 Apr;20(2):158-65.

Fehnel S, DeMuro C, McLeod L, Coon C, Gnanasakthy A. US FDA patient-reported outcome guidance: great expectations and unintended consequences. *Expert Rev Pharmacoecon Outcomes Res.* 2013;13(4):441-6.

Nelson LM, Forsythe A, McLeod L, Pulgar S, Maldonado M, Coles T, et al. Psychometric evaluation of the Cushing's Quality-of-Life questionnaire. *Patient.* 2013;6(2):113-24.

Coon CD, McLeod LD. Patient-reported outcomes: current perspectives and future directions. *Clin Ther.* 2013 Apr;35(4):399-401.

Reeve BB, Wyrwich KW, Wu AW, Velikova G, Terwee CB, Snyder CF, ..., McLeod LD, et al. ISOQOL recommends minimum standards for patient-reported outcome measures used in patient-centered outcomes and comparative effectiveness research. *Qual Life Res.* 2013 Oct;22(8):1889-905.

Chandran AB, Coon CD, Martin SA, McLeod LD, Coles TM, Arnold LM. Sphygmomanometry-evoked allodynia in chronic pain patients with and without fibromyalgia. *Nurs Res.* 2012;61(5):363-8.

Coon CD, Bokowy KL, Horblyuk R, Zisman RS, McLeod LD, Brown TM. The development and initial assessment of the Strategy and Leadership Systems Capability Evaluation Survey. *Health Care Manag (Frederick).* 2012;31(4):332-41.

Engelhart L, Nelson L, Lewis S, Mordin M, Demuro-Mercon C, Uddin S, McLeod L, et al. Validation of the Knee Injury and Osteoarthritis Outcome Score subscales for patients with articular cartilage lesions of the knee. *Am J Sports Med.* 2012;40(10):2264-72.

Bell C, McLeod L, Nelson L, Fehnel S, Zografos L, Bowers B. Development and psychometric evaluation of a new patient-reported outcome instrument measuring the functional impact of insomnia. *Qual Life Res.* 2011;20(9):1457-68.

Dalal A, Nelson L, Gilligan T, McLeod L, Lewis S, DeMuro-Mercon C. Evaluating patient-reported outcome measurement comparability between paper and alternate versions using the lung function questionnaire as an example. *Value Health.* 2011;14(5):712-20.

McLeod LD, Coon CD, Martin SA, Fehnel SE, Hays RD. Interpreting patient-reported outcome results: US FDA guidance and emerging methods. *Expert Rev Pharmacoecon Outcomes Res.* 2011;11(2):163-9.

Mintz ML, Yawn BP, Mannino DM, Donohue JF, Hanania NA, Grellet CA, ..., McLeod LD, et al. Prevalence of airway obstruction assessed by lung function questionnaire. *Mayo Clin Proc.* 2011;86(5):375-81.

Swartz RJ, Schwartz C, Basch E, Cai L, Fairclough DL, McLeod L, et al.; SAMSI Psychometric Program Longitudinal Assessment of Patient-Reported Outcomes Working Group. The king's foot of patient-reported outcomes: current practices and new developments for the measurement of change. *Qual Life Res.* 2011;20(8):1159-67.

Dalal AA, DeMuro-Mercon C, Lewis S, Nelson L, Gilligan T, McLeod L. Validation of alternate modes of administration of the lung function questionnaire (LFQ) in subjects with smoking history. *Int J Chron Obstruct Pulmon Dis.* 2010;5:425-34.

Lee, LJ, Fahrback JL, Nelson LM, McLeod LD, Martin SA, Sun P, Weinstock RS. Effects of insulin initiation on patient-reported outcomes in patients with type 2 diabetes: results from the DURABLE trial. *Diabetes Res Clin Pract.* 2010;89(2):157-66.

Goldberg JF, McLeod LD, Fehnel SE, Williams VSL, Hamm LR, Gilchrist K. Development and psychometric evaluation of the Bipolar Functional Status Questionnaire (BFSQ). *Bipolar Disord.* 2010;12(1):32-44.

NICHD Early Child Care Research Network. Psychosocial and lifestyle factors associated with early-onset persistent and late-onset asthma. *Child Health Care.* 2010; 39(3):185-98.

Fehnel SE, Zografos LJ, Curtice TG, Shah H, McLeod L. The burden of restless legs syndrome: an assessment of work productivity, sleep, psychological distress, and health status among diagnosed and undiagnosed individuals in an internet-based panel. *Patient.* 2008;1(3):201-10.

Hill CD, Fehnel SE, Yu H, Bobula JD, McLeod L. Development and preliminary psychometric evaluation of the Menopause Symptoms Treatment Satisfaction Questionnaire (MS-TSQ). *Menopause.* 2007;14(6):1047-55.

Rosen R, Wincze J, Huang X, Mollen M, Song J, Harris K, McLeod L, Fisher W. Responsiveness and minimum important differences for the erection quality scale. *J Urol.* 2007;178(5):2076-81.

Portenoy R; the ID Pain Steering Committee. Development and testing of a neuropathic pain screening questionnaire: ID Pain. *Curr Med Res Opin.* 2006;22(8):1555-65.

Wincze J, Rosen R, Carson C, Korenman S, Niederberger C, McLeod L, et al. Erection quality scale: initial scale development and validation. *Urology*. 2004;64(2):351-6.

McLeod LD, Fehnel SE, Brandman J, Symonds T. Evaluating minimal clinically important differences (MCID) for the acne-specific quality of life questionnaire (Acne-QoL). *Pharmacoeconomics*. 2003;21(15):1069-79.

McLeod LD, Lewis C, Thissen D. A Bayesian method for the detection of item preknowledge in computerized adaptive testing. *Appl Psychol Meas*. 2003;27(2):121-37.

National Institute of Child Health and Human Development (NICHD) Early Child Care Research Network. Child care and common communicable illnesses in children aged 37 to 54 months. *Arch Pediatr Adolesc Med*. 2003;157(2):196-200.

Fehnel SE, McLeod LD, Brandman J, Arbit DI, McLaughlin-Miley CJ, Coombs JH, et al. Responsiveness of the Acne-specific quality of life questionnaire to treatment for acne vulgaris in placebo-controlled clinical trials. *Qual Life Res*. 2002;11(8):809-16.

Chromy JR, McLeod LD. Considerations for the development of G-CAHPS composite scoring algorithms. Development and testing of the Group-Level Consumer Assessment of Health Plans Study Instrument: results from the national G-CAHPS field test. Edited by the G-CAHPS Research Team. 2001.

Scrams DJ, McLeod LD. An expected response function approach to graphical differential item functioning. *J Educ Meas*. 2000;37(3):263-77.

McLeod LD, Lewis C. Detecting item memorization in the CAT environment. *Appl Psychol Meas*. 1999;23(2):147-60.

Yung YF, Thissen D, McLeod LD. On the relationship between the higher-order factor model and the hierarchical factor model. *Psychometrika*. 1999;64(2):113-28.

Williams VSL, Rosa KR, McLeod LD, Thissen D, Sanford E. Projecting to the NAEP scale: results from the North Carolina end-of-grade testing program. *J Educ Meas*. 1998;35(4):277-96.

Books and Book Chapters

McLeod L, Bethke A, Hill C, Van Dyk P, Burling K. Development of a computerized adaptive test for a large-scale testing program: a case study of the development of the North Carolina computerized adaptive testing system. In Howell S, Hricko M, editors. *Online assessment and measurement, volume 2: case studies from higher education, K-12, and corporate*. Hershey, PA: Idea Group Publishing; 2005.

McLeod, LD, Swygert KA, Thissen D. Chapter 5: Factor analysis for items scored in two categories. In Thissen D, Wainer H, editors. *Test scoring*. Hillsdale, NJ: Lawrence Erlbaum Associates; 2001.

Thissen DL, Nelson K, Billeaud, McLeod LD. Chapter 4: Item response theory for items scored in more than two categories. In Thissen D, Wainer H, editors. *Test scoring*. Hillsdale, NJ: Lawrence Erlbaum Associates; 2001.

Swygert KA, LD McLeod, Thissen D. Chapter 6: Factor analysis for items or testlets scored in more than two categories. In Thissen D, Wainer H, editors. *Test scoring*. Hillsdale, NJ: Lawrence Erlbaum Associates; 2001.

Published Technical Reports

Scrams DJ, McLeod LD. LSAT CAT Research Report 99-01. An expected response function approach to graphical differential item functioning; 2006.

McLeod LD, Schnipke DL. LSAT CAT Research Report 99-05. Detecting items that have been memorized in the CAT environment; 2006.

McLeod LD, Scrams DJ, Roussos L. LSAT CAT Research Report 99-06. A polynomial logistic regression approach to graphical differential item functioning; 2006.

Bethke A, Hill C, McLeod L, VanDyk P, Zhao L, Zhou X, Thissen D. RTI International Report. North Carolina Computerized Adaptive Testing System: 2003 comparability study results; 2004. Research Triangle Park, NC.

McCall N, McLeod L, Wilson D, Moore A, Potelle J. Centers for Medicare and Medicaid Services: Health status of the medicare population: an examination of disparities; 2003.

Luebke S, Swygert K, McLeod LD, Dalessandro S, Roussos L. LSAT CAT Research Report 02-02. Final Report: LSAC skills analysis law school task survey; 2003.

Chromy JR, McLeod LD. Considerations for the development of G-CAHPS composite scoring algorithms. Development and Testing of the Group-Level Consumer Assessment of Health Plans Study Instrument: Results from the National G-CAHPS Field Test, edited by the G-CAHPS Research Team; 2001.

Dalessandro SP, McLeod LD. LSAT Technical Report 98-05. The validity of law school admission test scores for repeaters: a replication; 1999.

McLeod LD, Lewis C, Thissen D. LSAT Computerized Testing Report 98-07. A bayesian method for the detection of item preknowledge in CAT; 1999.

Williams VSL, Billeaud K, **Davis LA**, Thissen D, Sanford E. Technical Report #34. National Institute of Statistical Sciences: Projecting to the NAEP scale: results from the North Carolina end-of-grade testing program; 1995. Research Triangle Park, NC.

Selected Presentations

Hudgens S, Symonds T, McLeod L, Coon C. Moving the science forward: psychometric considerations and study designs for understanding meaningful change and conducting mixed methods research. Presented at the ISPOR 19th Annual European Congress; October 31, 2016. Vienna, Austria.

Martin M, Hudgens S, Regnault A, Eremenco S, McLeod. Clinical outcomes assessment in a multi-cultural context: measurement challenges and solutions a collaborative workshop by the Psychometric and Translation & Cultural Adaptation Special Interest Groups. Workshop presented at the ISOQOL 23rd Annual Conference; October 19, 2016. Copenhagen, Denmark.

Hudgens S, Regnault A, McLeod L, Martin M, Eremenco, S. Clinical outcomes assessment in a multi-cultural context: measurement challenges and recommendations. Webinar presented for the International Society for Quality of Life Research; December 17, 2015.

McLeod L. Rare Diseases: endpoint evaluation, analysis, and interpretation. Presented at DIA Advancing the Science of Study Endpoints; October 6, 2015. Bethesda, MD.

Sofen H, Korman N, Rich P, Fretzin S, Zhao Y, ..., McLeod L, et al. Secukinumab provides more effective relief from skin-related quality-of-life impact than placebo in moderate to severe psoriasis. Poster presented at the American Academy of Dermatology 74th Annual Meeting; March 4, 2016; Washington, DC. [abstract] *J Am Acad Dermatol*. May 2016; 74(5 (Supplement 1)):AB272. doi: <http://dx.doi.org/10.1016/j.jaad.2016.02.1051>.

Strober B, Sigurgeirsson B, Popp G, Sinclair R, Krell J, ..., McLeod LD, et al. Secukinumab improves patient-reported psoriasis symptoms of itching, pain, and scaling: results of two phase 3, randomized, placebo-controlled clinical trials. *Int J Dermatol*. 2016 Feb 11. doi: 10.1111/ijd.13236

Strober B, Zhao Y, Tran MH, Gnanasakthy A, Nyirady J, ..., McLeod LD, et al. Psychometric validation of the psoriasis symptom diary using phase III study data from patients with chronic plaque psoriasis. *Int J Dermatol*. 2016 Mar;55(3):e147-55. doi: 10.1111/ijd.13117.

Lebwohl M, Gottlieb A, Elewski B, Rich P, Jazayeri S, ..., McLeod L, et al. Secukinumab impact on patient-reported psoriasis experiences: analysis of the psoriasis symptom diary from the ERASURE and FIXTURE trials. Poster presented at 73rd Annual Meeting of the American Academy of Dermatology. March 20, 2015. San Francisco, CA.

Traina SB, McQuarrie K, Barrett A, DiBenedetti D, McLeod L. Content validity of the current health satisfaction questionnaire (CHES-Q) among people living with type 2 diabetes mellitus and comorbid chronic kidney disease (CKD). Poster presented at the ISPOR 18th Annual European Congress; November 2015. Milan, Italy.

Hogue SL, Brogan AP, DeMuro C, Barrett A, McLeod LD, D'Alessio D, et al. Payer perspectives of patient reported outcomes data: an online assessment. Poster presented at the ISOQOL 22nd Annual Conference; October 24, 2015. Vancouver, Canada.

Sinclair R, McLeod L, Mallya UG, Fox T, Strober B. Psoriasis patients with PASI90 response achieve greater health-related quality of life improvements than those with PASI75 response. Poster presented at the 48th Australasian College of Dermatologists Annual Scientific Meeting; May 2015; Adelaide, South Australia. [abstract] *Australas J Dermatol*. May 2015; 56(S2):68.

Mordin M, Brown TM, McLeod L, DeMuro C, Gnanasakthy A. Two companies following the FDA PRO guidance leads to similar but different measures: a case study in psoriasis. Poster presented at the International Society for Pharmacoeconomics and Outcomes Research 20th Annual International Meeting; May 2015. Philadelphia, PA.

Odom D, McLeod L, Sherif B, Nelson L. Methods to assess the association of patient-reported outcomes and clinical endpoints. Podium presentation at the International Society for Pharmacoeconomics and Outcomes Research 20th Annual International Meeting; May 2015. Philadelphia, PA.

McLeod LD, Mallya UG, Fox T, Zhao Y, Mordin MM, Strober B. Psoriasis patients with PASI 90 response achieve greater health-related quality of life improvements than those with PASI 75-89 response. Poster presented at the 2015 Winter Clinical Dermatology Conference; January 16, 2015. Maui, HI.

Kontoudis I, Harries M, Mohr P, Grange F, Ehness R, ..., McLeod LD, et al. Economic burden of melanoma in three European countries: a retrospective observational study. Poster presented at the 17th Annual European Congress of the International Society for Pharmacoeconomics and Outcomes Research; November 2014. Amsterdam, the Netherlands.

Coles TM, Chen W, Nelson LM, Williams VS, Williams NJ, McLeod LD. Current sample size practices in the psychometric evaluation of patient-reported outcome measures for use in clinical trials. Poster presented at the 17th Annual European Congress of the International Society for Pharmacoeconomics and Outcomes Research; November 2014. Amsterdam, the Netherlands.

Chen W, McLeod LD, Coles TM. Rasch first? Factor first? Poster presented at the 17th Annual European Congress of the International Society for Pharmacoeconomics and Outcomes Research; November 2014. Amsterdam, the Netherlands.

Elewski B, McLeod LD, Zhao Y, Mallya U, Lebwohl M. Secukinumab versus placebo or etanercept on time to response on patient-reported psoriasis symptoms of pain, itching, and scaling (FIXTURE Study). Poster presented at the 33rd Anniversary Fall Clinical Dermatology Conference; October 16, 2014. Las Vegas, NV.

McLeod L, Mallya UG, Fox T, Strober B. Psoriasis patients with PASI90 response achieve greater health-related quality of life improvements than those with PASI75 response. Poster presented at the 23rd European Academy of Dermatology and Venereology Congress; October 8-12, 2014. Amsterdam, the Netherlands.

Mohr P, Harries M, Grange F, Ehness R, Benjamin L, . . . , McLeod L, et al. Treatment patterns and disease burden of stage IIIB/IIIC melanoma in France, Germany and the United Kingdom. Poster presented at the 39th European Society for Medical Oncology Congress; September 26-30, 2014. Madrid, Spain.

Chen WH, Nelson LM, McLeod LD, Edelen MO. Quantitative challenges facing patient-centered outcomes research. Workshop presented at 19th Annual Meeting of the International Society for Pharmacoeconomics and Outcomes Research; June 2014. Montreal, Quebec, Canada.

Strober B, Zhao Y, Tran MH, Gnanasakthy A, Nelson LM, McLeod LD, et al. Psychometric evaluation of the psoriasis symptom diary using phase 3 trial data. Poster presented at the 19th Annual Meeting of the International Society for Pharmacoeconomics and Outcomes Research; June 2014. Montreal, Quebec, Canada.

DeMuro C, McLeod L, Fehnel S, Meyer T. Determining clinically meaningful change in subjective tinnitus loudness. International Tinnitus Seminar; May 2014. Berlin, Germany.

Elewski B, McLeod LD, Zhao Y, Mallya U, Lewbhol M. Secukinumab versus placebo or etanercept on time to response on patient-reported psoriasis symptoms of pain, itching, and scaling (fixture study). Poster presented at the 72nd Annual Meeting of the American Academy of Dermatology; March 21, 2014. Denver, CO.

Hogue S, Hollis K, McLeod L, Brogan AP, Heyes A. European payer advisors' use of observational studies for health care reimbursement decisions. Poster presented at the International Society for Pharmacoeconomics and Outcomes Research 16th Annual European Congress; November 2013. Dublin, Ireland.

Hogue S, Scott A, van Amerongen D, Hollis K, McLeod L, Brogan A. Payer and decision maker use of observational studies for health care reimbursement decisions. Poster presented at the International Society for Pharmacoeconomics and Outcomes Research 18th Annual International Meeting; April 30, 2013. New Orleans, LA.

Petrillo J, Cano S, McLeod L, Coon C. What is the value of classical test theory, item response theory, and Rasch measurement theory in the development of patient-reported outcome instruments? Issue panel presented at the 17th Annual Meeting of the International Society for Pharmacoeconomics and Outcomes Research; June 2012. Washington, DC.

Martin S, Coon C, McLeod L, Chandran A, Arnold L. Study of the measurement properties of the Arnold Fibromyalgia Diagnostic Screen: results from a cross-sectional study. Podium presentation at the 75th Annual Scientific Meeting of the American College of Rheumatology and the Association of Rheumatology Health Professionals; November 2011. Washington, DC.

McLeod L, Williams VSL, Nelson L, Coon C. Psychometrics for the non-psychometrician – part I. Short course presented at the 18th Annual Conference of the International Society for Quality of Life Research; October 26-29, 2011. Denver, CO.

Coon C, Nelson L, McLeod L, Williams VSL. Psychometrics for the non-psychometrician – part II. Short course presented at the 18th Annual Conference of the International Society for Quality of Life Research; October 26-29, 2011. Denver, CO

McLeod L, Pulgar S, Nelson L, Maldonado M, Gilligan T, Zhang Y, et al. Psychometric evaluation of the Cushing's Quality of Life Questionnaire (CushingQOL). Presented at the 18th Annual Conference of the International Society for Quality of Life Research; October 26-29, 2011. Denver, CO.

Gilligan T, Nelson L, McLeod L, Dalal A. Visually evaluating the measurement comparability between paper-based and alternate versions of administration of the lung function questionnaire. Poster presentation at the 16th Annual International Meeting of the International Society for Pharmacoeconomics and Outcomes Research; May 2011. Baltimore, MD.

Dalal A, Nelson L, Gilligan T, McLeod L, Lewis S, DeMuro C. Measurement comparability between paper and alternate versions: recommended assessment steps using the lung function questionnaire as an example. Poster presentation at the 16th Annual International Meeting of the International Society for Pharmacoeconomics and Outcomes Research; May 2011. Baltimore, MD.

Coon C, McLeod L, Arnold L, Chandran A, Martin S. Evaluating the screening ability of patient-reported outcome instruments. Poster presentation at the 16th Annual International Meeting of the International Society for Pharmacoeconomics and Outcomes Research; May 2011. Baltimore, MD.

Nelson L, McLeod L, Mordin M, Farr J, Cole B, Uddin S, Engelhart L. Psychometric evaluation of the Knee Injury and Osteoarthritis Outcome Score (KOOS) subscales for patients with articular cartilage lesions of the knee using pilot study data of the Cartilage Autograft Implantation System (CAIS). Podium presentation at the 9th International Cartilage Repair Society World Congress; September 2010. Sitges, Spain.

McLeod L, Hays R, Martin S, Fehnel S. Defining a responder: implementing the Patient-Reported Outcome (PRO) Guidance recommendations. Podium presentation at the 15th Annual International Meeting of the International Society for Pharmacoeconomics and Outcomes Research; May 2010. Atlanta, GA.

Nelson L, McLeod L, Lee J, Hill C, Sweeney C, Sun P, et al. Effects of insulin therapy on the Diabetes-Symptom Checklist-Revised (Dsc-R): data from a large insulin clinical trial. Presented at the 16th Annual Conference of the International Society for Quality of Life Research; October 2009. New Orleans, LA.

McLeod L, Hill C. Advanced psychometric methods for pro development - item response theory. Workshop presented at the 16th Annual Conference of the International Society for Quality of Life Research; October 2009. New Orleans, LA.

McLeod L. Estimating minimally important differences: trying to answer the so what? Podium presentation at Statistical and Applied Mathematical Sciences Institute: 2009 Summer Program on Psychometrics; July 2009. Research Triangle Park, NC.

Lee J, McLeod L, Nelson L, Hill C, Sweeney C, Sun P, et al. Initiation of insulin therapy improves self-reported diabetes symptoms in patients (Pts) with type 2 diabetes (T2D) on oral agents. Poster presented at the 69th Scientific Sessions of the American Diabetes Association; June 2009. New Orleans, LA.

Lee L, Nelson L, McLeod L, Hill C, Fahrback J, Martin S, Weinstock R. Effects of insulin therapy on self-reported diabetes-related symptom severity. Poster presented at the 14th Annual International Meeting of the International Society for Pharmacoeconomics and Outcomes Research; May 2009. Orlando, FL.

McLeod LD, Hill CD. Patient-reported outcomes: item-response theory. Short course presented at the 13th Annual International Meeting of the International Society for Pharmacoeconomics and Outcomes Research; May 2008. Toronto, ON, Canada.

Goldberg J, McLeod L, Fehnel S, Hamm L, Gilchrist K. Development and evaluation of a new patient-reported instrument: The Bipolar Functional Status Questionnaire. Poster presented at the 16th European Congress of Psychiatry; April 2008. Nice, France.

McLeod L, Fehnel S, Zografos L, Sander S, Curtice T, Shah H. The impact of restless legs syndrome on diagnosed and undiagnosed sufferers: results of a web-based patient survey. Poster presented at the SLEEP 2007 21st Annual Meeting of the Associated Professional Sleep Societies; June 2007. Minneapolis, MN.

McLeod L, Fehnel S, Zografos L, Sander S, Curtice T, Shah H. The impact of restless legs syndrome on various dimensions of life: results of a Web-based patient survey. Poster presented at the 12th Annual International Meeting of the International Society for Pharmacoeconomics and Outcomes Research (ISPOR); May 2007. Arlington, VA.

Portenoy R, Cleeland C, Backonja M, Moskowitz R, Parsons B, McLeod L, et al. A new validated patient-completed neuropathic pain screening tool for use in the primary care setting. Poster presented at the 66th American Academy of Physical Medicine and Rehabilitation Annual Assembly; October 2005. Philadelphia, PA.

Fehnel SE, McLeod LD, Edin HM, Hogue SL. Psychometric evaluation of the Motivation and Energy Inventory – Short Form (MEI-SF). Paper presented at the 12th Annual Conference of the International Society for Quality of Life Research; October 2005. San Francisco, CA.

McLeod, LD, Fehnel SE, Wills MM, Hamm LR, Gilchrist KA. Psychometric validation of a patient-reported instrument assessing functional status in bipolar disorder. Poster presented at the 12th Annual Conference of the International Society for Quality of Life Research; October 2005. San Francisco CA.

Fehnel SE, Edin HM, McLeod LD, Hogue SL. Development and preliminary psychometric evaluation of the Motivation and Energy Inventory – Short Form (MEI-SF). Poster presented at the 18th Congress of the European College of Neuropsychopharmacology; October 2005. Amsterdam, The Netherlands.

Portenoy R, Cleeland C, Backonja M, Moskowitz R, Parsons B, McLeod L, Griesing T. Development and validation of a new patient-completed neuropathic pain screening tool for use in the primary care setting. Poster presented at the 9th Congress of the European Federation of Neurological Societies; September 2005. Athens, Greece.

Portenoy R, Cleeland C, Backonja M, Moskowitz R, Parsons B, McLeod L, Siffert J, Griesing T. Development and validation of a new patient-completed neuropathic pain screening tool for use in the primary care setting. Poster presented at the 11th World Congress on Pain; August 2005. Sydney, Australia.

Portenoy R, Cleeland C, Backonja M, Moskowitz R, Parsons B, McLeod L, et al. Development and validation of a new patient-completed neuropathic pain screening tool for use in the primary care setting. Poster presented at the International Special Interest Group on Neuropathic Pain of the International Association for the Study of Pain. “Expanding Vistas in Neuropathic Pain.” Official Satellite symposium of the 11th World Congress of Pain; August 2005. Uluru, Australia.

Bala M & McLeod LD. Estimating Minimally Important Difference: Is it really minimal? Podium presentation at the 2005 Annual Meeting of the International Society for Pharmacoeconomics and Outcomes Research (ISPOR); May 2005. Washington, DC.

Portenoy R, Cleeland C, Backonja M, Moskowitz R, Parsons B, McLeod L, Griesing T. A new validated patient-completed neuropathic pain screening tool for use in the primary care setting. Poster presented at the 57th Annual Meeting of the American Academy of Neurology; April 2005. Miami, FL. [Neurology. 2005 Mar;64(Suppl 1):A123.]

Portenoy R, Cleeland C, Backonja M, Moskowitz R, Parsons B, McLeod L, Griesing T. A new validated patient-completed neuropathic pain screening tool for use in the primary care setting. Poster presented at the 24th Annual Scientific Meeting of the American Pain Society; April 2005. Boston, MA. [J Pain 2005 Mar;6(3 Suppl 1):S27.]

Portenoy R, Cleeland C, Backonja M, Moskowitz R, Parsons B, McLeod L, et al. The development of a new patient-completed neuropathic pain screening tool for use in the primary care setting. Poster presented at the 17th World Conference of Family Doctors; October 2004. Orlando, FL.

McLeod LD, Fehnel SE. Defining minimal clinically important differences: does item response theory have the answer? Presentation given at the International Meeting of the Psychometric Society; June 2004. Monterey, CA.

Fehnel SE, Edin HM, McLeod LD, Hogue SL. Development and preliminary psychometric evaluation of the motivation and energy inventory - short form (MEI-SF). Poster accepted for presentation at the International Society for Quality of Life Research (ISOQOL) 2004 Symposium, Stating the Art: Advancing Outcomes Research Methodology and Clinical Applications; June 2004. Boston, MA.

Van Dyk P, Bethke A, McLeod L. Research and development of the North Carolina computer adaptive testing system. Presentation given at the 2004 Accountability Conference; February 2004. Greensboro, NC.

Wincze J, Rosen R, Carson C, Sadovsky R, Niederberger C, McLeod L, et al. The erection quality scale: development and initial evaluation. Poster accepted for presentation at the European Society for Sexual Medicine (ESSM) Sixth Congress; November 2003. Istanbul, Turkey.

Wincze J, Fehnel SE, McLeod LD, Granger AL, Merchant S. Development and initial testing of a new patient-reported questionnaire: erection quality scale. Poster accepted for presentation at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Sixth Annual European Congress; November 2003. Barcelona, Spain.

Fehnel SE, McLeod LD, Hogue SL. The responsiveness of the motivation and energy inventory (MEI). Poster accepted for presentation at the Annual International Society for Quality of Life Research (ISOQOL) Conference; November 2003 Prague, Czech Republic.

Williams, V.S.L., McLeod, L.D., and Fehnel, S.E. Psychometrics: processes and applications. Workshop presented at the Annual International Society for Quality of Life Research (ISOQOL) Conference; November 2003. Prague, Czech Republic.

Fehnel SE, McLeod LD, Hogue SL. Alternative methods for examining the responsiveness of the motivation and energy inventory (MEI). Poster accepted for presentation at the American Psychiatric Association's 55th Institute on Psychiatric Services; October 2003. Boston, MA.

Wincze J, Rosen R, Korenman S, Niederberger C, Sadovsky R, McLeod L, et al. Development and initial evaluation of the erection quality scale. Abstract accepted for podium presentation at the Sexual Medicine Society of North America (SMS) Fifth Annual Research Meeting; October 2003. Denver, CO.

Fehnel SE, McLeod LD, Williams VSL. Combining qualitative and quantitative techniques in the development of patient-reported outcome measures. Workshop accepted for presentation at the Eighth Annual International Meeting of the International Society for Pharmacoeconomics and Outcomes Research; May 2003. Arlington, VA.

Fehnel SE, McLeod LD, Pendergast K, Hogue SL, Harrison DJ, Mahajan SS. Further psychometric evaluation of the motivation and energy inventory (MEI). Poster presented at the Annual International Society for Quality of Life Research (ISOQOL) Conference; November 2002. Orlando, FL.

McLeod LD, Fehnel SE, Williams VSL. Psychometrics for the non-psychometrician. Workshop given at the Annual International Society for Quality of Life Research (ISOQOL) Conference; November 2002. Orlando, FL.

McLeod LD, Fehnel SE. IRT evaluation of quality of life questionnaires. Presentation given at the American Statistical Association Annual Meeting; August 2002. New York, NY.

Fehnel SE, McLeod LD. Psychometrics for the non-psychometrician. Workshop given at the Seventh Annual International Meeting of the International Society for Pharmacoeconomics and Outcomes Research; May 2002. Arlington, VA.

McLeod LD, Fehnel SE, Brandman J, Symonds T. Minimal clinically important differences on the acne-specific quality of life questionnaire (Acne-QoL). Presentation given at the Drug Information Association's 9th Annual Symposium for Quality of Life Evaluation; March 2002. Hilton Head, SC.

Fehnel SE, McLeod LD. Responsiveness of the acne-specific quality of life questionnaire (Acne-QoL). Poster presented at the Annual International Society for Quality of Life Research (ISOQOL) Conference; November 2001. Amsterdam, The Netherlands.

McLeod LD, Fehnel SE. An application: evaluating the psychometric properties of the acne-qol within the context of a randomized, placebo-controlled study. Paper presented at the annual meeting of the Psychometric Society; July 2001. Osaka, Japan.

Swygert KA, McLeod LD. Using square combining tables to recover item and examinee response time effects. Paper presented at the annual meeting the Psychometric Society; 2000. Vancouver, BC, Canada.

Luebke S, Plumer G, McLeod LD, Roussos L. Some models for application of content constraints in a testlet-based computer adaptive test design. Paper presented at the annual meeting of the National Council on Measurement in Education; 2000. New Orleans, LA.

Patsula LN, McLeod LD. Detecting items that have been memorized in computerized-adaptive testing and multi-stage testing: a comparison. Paper presented at the annual meeting of the National Council on Measurement in Education; 2000. New Orleans, LA.

McLeod LD, Schnipke DL. Detecting items that have been memorized in the CAT environment. Paper presented at the annual meeting of the National Council on Measurement in Education; 1999. Montreal, Canada.

McLeod LD, Lewis C. A bayesian approach to detection of item preknowledge in a CAT. Paper presented at the annual meeting of the National Council on Measurement in Education; 1998. San Diego, CA.

McLeod LD, Lewis C. A new approach for the detection of item preknowledge in computerized adaptive testing. Paper presented at the annual meeting of The Psychometric Society; 1998. Urbana, IL.

Yung Y, Thissen D, McLeod LD. Higher-order factor models and hierarchical factor models: equivalent? Paper presented at the annual meeting of The Psychometric Society; 1998. Urbana, IL.

Yung Y, Thissen D, McLeod LD. The higher-order factor model and hierarchical factor model: equivalent? Paper presented at a Quantitative lunch seminar for The L. L. Thurstone Psychometric Laboratory; 1998. Chapel Hill, NC.

Thissen D, Billeaud K, McLeod LD, Nelson L. A brief introduction to item response theory for items scored in more than two categories. Paper presented at the Achievement Levels Workshop; 1997. Boulder, CO.

McLeod LD, Lewis C. Person-fit indices and their role in the CAT environment. Paper presented at the annual meeting of the National Council on Measurement in Education; 1996. New York, NY.

Thissen D, Billeaud K, **Davis LA**, Sanford E, Williams VSL. Linking state assessment scores to the NAEP scale. Paper presented at the Education Information Advisory Committee (EIAC) Assessment subcommittee meeting; 1996. New Orleans, LA.

Thissen D, Billeaud K, **Davis LA**, Sanford E, Williams VSL. Linking the North Carolina end-of-grade mathematics test to the NAEP scale. Paper presented at the National Institute of Statistical Sciences workshop: Perspectives on statistics for educational research; 1995. Research Triangle Park, NC.

Thissen D, Billeaud K, **Davis LA**, Sanford E, Williams VSL. Projection of results on the NAEP scale, using data from the North Carolina end-of-grade testing program. Paper presented at the annual meeting of the Psychometric Society; 1995. Minneapolis, MN.

Thissen D, Billeaud K, **Davis LA**, Sanford E, Williams VSL. Projection of results on the NAEP scale, using data from the North Carolina end-of-grade testing program. Paper presented at the annual Joint Statistical Meetings; 1995. Orlando, FL.

Davis LA. From subjective to objective. Paper presented at Duke University School of Nursing; 1995. Durham, NC.

Updated February 2017