

# Participant Learning at Psychiatry CME Sessions

## *A Follow-up Evaluation at the University of Western Ontario*

Laeq Tahir, MD, FRCP(C)<sup>1</sup>, Nicole Tsang, MD<sup>2</sup>, Marnin Jori Heisel, PhD, CPsych<sup>3\*</sup>,  
Jatinder Takhar, MD, FRCP(C)<sup>4</sup>

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<sup>1</sup> Assistant Professor, Clinical Psychiatry, Dalhousie University and Consultant Psychiatrist, The Moncton Hospital, Moncton, New Brunswick. At the time of writing this article, Dr. Tahir was an Assistant Professor and Director, Continuing Education, Dept /Psychiatry, University of Western Ontario (UWO)

<sup>2</sup> Resident, Dept./ Psychiatry, University of British Columbia

<sup>3</sup> Assistant Professor, Depts/ Psychiatry & Epidemiology and Biostatistics, UWO  
Scientist, Lawson Health Research Institute, London, Ontario

<sup>4</sup> Associate Professor, Dept./ Psychiatry, UWO and Clinical Lead/Shared Care Program, Regional Mental Health Care, London. Ontario

\* Corresponding author: Department of Psychiatry, The University of Western Ontario, London Health Sciences Centre, South Street Hospital, 375 South St., Room 5054, London, Ontario, Canada, N6A-4G5, (519) 685-8500, ext. 75981, fax (519) 667-6564, e-mail:Marnin.Heisel@lhsc.on.ca

### **Abstract**

**Context:** *The impact of Continuing Medical Education (CME) activities in effecting professional development needs to be investigated.*

**Objective:** *The authors evaluated participants' learning during monthly CME half-day seminars in the Department of Psychiatry at The University of Western Ontario from 2002-2005.*

**Method:** *CME guest speakers each contributed 4-6 knowledge-based multiple-choice questions on the topic of their presentation. These questions were administered to participants immediately prior to the CME presentation (pre-test) and at the end of the CME half-day (post-test). We scored percentage of participants passing the pre- and post-test evaluations (arbitrarily set a priori at  $\geq 60\%$  of items answered correctly) and number of items answered correctly by each participant. We evaluated pre- to post-test changes in participant pass rates using Wilcoxon's sign-rank test and in individual participant scores with repeated-measures t-tests. Statistical significance was set at  $\alpha = 0.05$  for all tests.*

**Results:** *Overall, 45.4% of participants passed the pre-test and 74.2% passed the post-test. Participants' pre- to post-test scores improved significantly for 14 of 21 sessions with paired evaluations.*

**Implications:** *Our analyses indicate that a transfer of knowledge occurs, which is associated with participation in CME sessions and affirms that employing a pre- to post-pairing of evaluations is useful for assessing learning in a CME context.*

**Limitations:** *The authors recognize three main limitations to the study. Improvement in knowledge was statistically significant in only 66% of CME sessions. Sample size was limited to 21 sessions with paired pre- to post-test evaluations. Degree of difficulty of the CME pre- to post-test evaluations varied considerably.*

Continuing Medical Education (CME) forms a vital link between professional education, practice, and maintenance of competence for clinicians and hospital staff [1,2]. CME activities are typically held at regular intervals, and much effort and preparation is devoted to their design, organization, evaluation, and implementation. Although much remains to be learned about CME outcomes, clinicians are highly inclined towards autonomous and self-directed learning [3]. CME programs may thus be more effective if they are based on principles of learner-identified needs and focus on both educational content and process [4]. CME process issues can include attending to audience interaction, increasing audience awareness of the importance of the session's topic, and motivating participants to engage in the kinds of activities that will enable them to make and sustain changes in their clinical practice [5]. Although formal didactic presentations have generally been found ineffective in changing patient care practices and outcomes, they are more likely to alter care practices when sessions focus on specific behavioural objectives [5]. This applies when learning is interactive and incorporates role-play, case discussions, and other similar techniques [5].

CME in the Department of Psychiatry at The University of Western Ontario utilizes a variety of formats and approaches, including journal club meetings, tele-videoconferences with local and distant sites, and monthly CME half-days. This article focuses on an evaluation of participant learning during CME half-days held between October of 2002 and February of 2005, and provides an update on an evaluation of our CME activities from 2001-2002 using a similar methodology, allowing for assessment of pre-post-session learning [6].

The lessons learned from the previous study were that fewer participants typically completed the post-test than the pre-test, and that given the confidentiality of participant responses, it was not possible to identify who had not completed the post-test, thus restricting investigation of pre- to post-test change. Nevertheless, the results suggested that participants acquired knowledge during the CME half-day events. To decrease these challenges to interpretation in the future, we implemented a new method of CME evaluation. We gave each participant both the pre- and post-tests at the beginning of the session, pre-stamped in a manner that would allow for pairing at the end of each session, while ensuring confidentiality. We additionally verbally reminded participants to complete both tests, at the beginning and end of the CME sessions. This new evaluation strategy resulted in more completed tests, thereby improving the data collection in the present study (6).

Approximately 7-8 CME half-days are held each year, covering topics relevant to clinical and basic science areas of psychiatry, providing an opportunity for continuous learning. Participants are invited from a broad geographical area encompassing the city of London and other rural communities in Southwestern Ontario (SWO). Each session is carefully designed with clear and concise objectives based on a needs assessment conducted during the previous year. This continuing educational activity is an important and integral part of education within the department of psychiatry and is widely publicized to departmental faculty, clinicians, and staff, and to clinics and private practitioners in the SWO region. CME half-days typically follow a standard format (*see Appendix A* for an example of a

typical programme): a psychiatric resident delivers a clinical case presentation on the day's theme, followed by a didactic presentation by a local faculty member, and an academic keynote address by an invited expert. The audience members are invited to engage in interactive discussion with the session's presenters and with one another. At the end of the session, psychiatric residents attend a luncheon with the session's presenters for a more informal academic discussion and socializing. The CME sessions are accredited group learning activities as defined by the Maintenance of Certification Program of The Royal College of Physicians and Surgeons of Canada, awarding 1 credit per hour of attendance. Sessions are interactive, allocating a minimum of 25% time for audience participation.

In addition to serving an important didactic function, these CME sessions provide an opportunity for collegial discussion, socializing, and interaction between faculty and trainees. Participants include hospital- and community-based psychiatrists, family physicians and other medical specialists, interdisciplinary healthcare professionals, medical residents, and other trainees. Over the period reported, physicians were the most common participants in the CME half-days ( $M=64\%$ , Range: 37-85%), followed by students ( $M=13\%$ , Range: 3-38%), nurses ( $M=10\%$ , Range: 5-24%), social workers ( $M=9\%$ , Range: 4-26%), psychologists ( $M=7\%$ , Range: 2-24%), and occupational therapists ( $M=4\%$ , Range: 2-8%), with "others" representing an average of 9% of participants (Range: 2-25%).

## METHOD

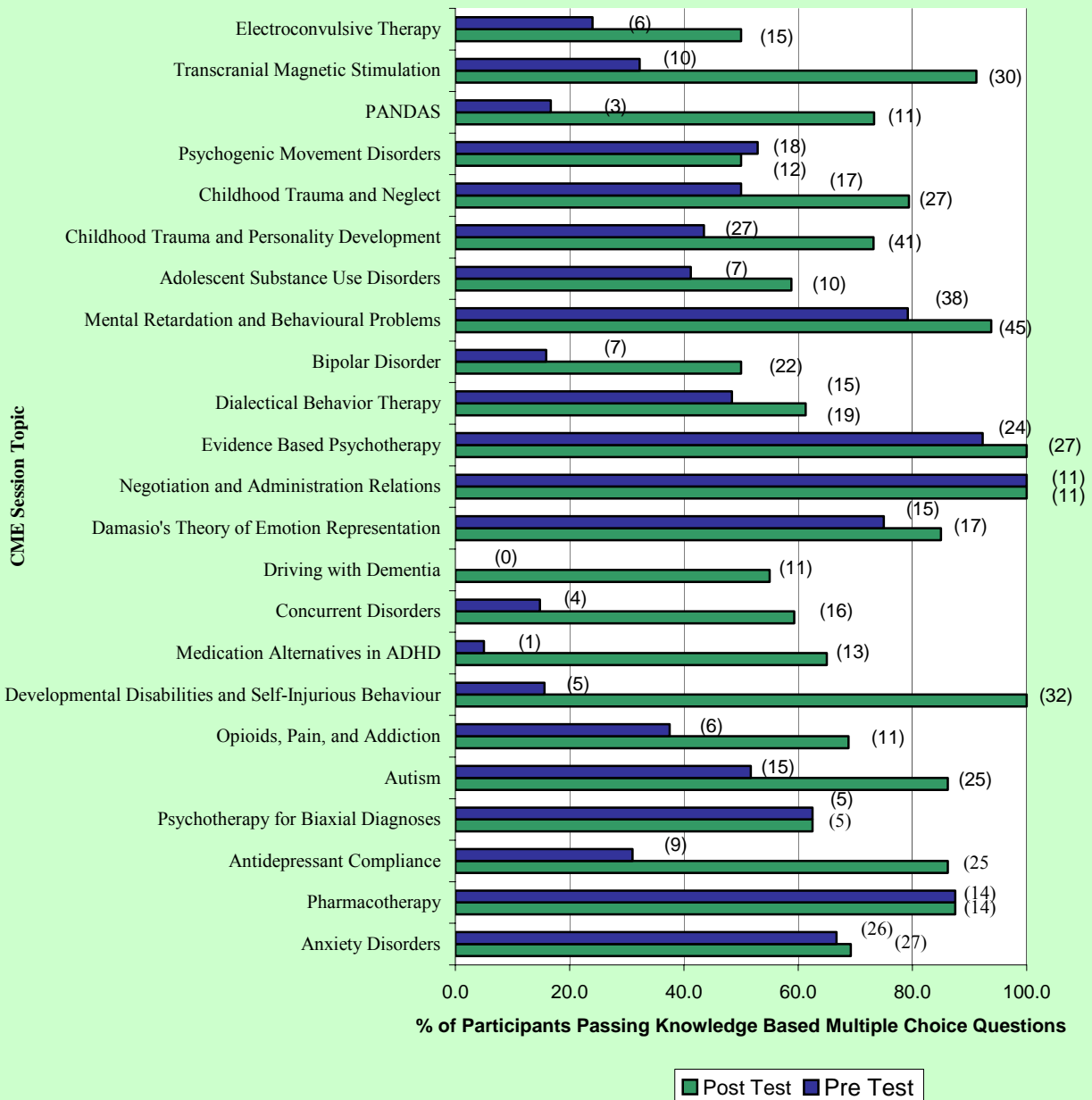
Prior to each CME session, the invited guest speaker provided 4-6 knowledge-based multiple-choice questions. Participants were given two identical sets of questions and were instructed to complete a pre-test evaluation just prior to the invited speaker's presentation, and a post-test evaluation immediately afterwards [6]. These questions were used to evaluate change in participant knowledge. The evaluations were scored by percentage of items correctly answered and given a pass/fail grade, with a passing mark arbitrarily set a priori at 60% of items correct. Pre- and post-tests from November of 2002 onwards were numbered to identify corresponding pairs while maintaining participant anonymity, thus facilitating statistical evaluation of knowledge transfer during the CME sessions. Statistical significance was set at  $\alpha = 0.05$  for all tests.

## RESULTS

We initially investigated the percentage of participants passing the pre-test and post-test evaluations. Overall, 45.4% of the participants passed the pre-test, and 74.2% passed the post-test (see *Figure 1* for individual breakdown by topic), consistent with improvements reported in the previous evaluation of our CME sessions from 2001-2002 [6]. A higher proportion of participants passed the post-test than the pre-test in 19 of the 23 sessions; a session on Negotiation and Administration Relations had a 100% passing rate for both pre- and post-tests. Of the 21 sessions with paired testing, 11 demonstrated a statistically significant increase in post-test relative to pre-test pass rates employing Wilcoxon's sign-rank test. We next explored pre- to post-test increases in participants' scores on the CME

evaluations. Participants' pre-test scores were consistently lower than at post-test, averaging 55.23% and 74.84% of items correct, respectively. The results of repeated-measures t-tests indicated statistically significant pre- to post-test increases in scores for 14 of the 21 sessions with paired testing (see Table 1).

**Figure 1. Participant Pass-Rates for Pre- and Post-Test CME Evaluations**



**Note:** PANDAS=Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcal Infections; ADHD=Attention Deficit/Hyperactivity Disorder. No participant passed the pre-test evaluation for the Driving with Dementia CME session; hence this session's pre-test pass rate was 0%. Numbers in parentheses represent the number of participants who passed the multiple-choice test.

**Table 1. Pre- to Post-Test Improvement in Mean CME Evaluation Scores**

CME Session Topic	Pre-Test Means	Post-Test Means	Mean Change	95% C.I.	t	p	n (pairs)
Electroconvulsive Therapy <sup>1</sup>	41.00	62.50	----	----	----	----	----
Transcranial Magnetic Stimulation <sup>1</sup>	50.00	81.62	----	----	----	----	----
PANDAS*	42.86	76.79	33.93	20.52 to 47.33	5.47	0.000	14
Psychogenic Movement Disorders	56.67	57.50	0.83	-11.7 to 13.4	0.14	0.892	24
Childhood Trauma and Neglect*	64.71	83.82	19.12	9.50 to 28.74	4.04	0.000	34
Childhood Trauma and Personality Development*	61.82	66.82	5.00	-1.81 to 11.81	1.47	0.147	35
Adolescent Substance Use Disorders	57.35	64.71	7.35	-2.57 to 17.27	1.57	0.136	17
Mental Retardation and Behavioural Problems*	82.29	93.23	10.94	4.60 to 17.27	3.47	0.001	48
Bipolar Disorder*	45.45	63.64	18.18	9.77 to 26.60	4.36	0.000	44
Dialectical Behavior Therapy	58.06	67.74	9.68	0.01 to 19.35	2.04	0.050	31
Evidence Based Psychotherapy Negotiation & Administration Relations	81.73	95.19	13.46	6.33 to 20.59	3.89	0.001	26
Damasio's Theory of Emotion Representation	79.55	95.45	15.91	7.44 to 24.38	4.18	0.002	11
Driving with Dementia*	63.33	76.67	13.33	5.09 to 21.57	3.39	0.003	20
Concurrent Disorders*	18.00	51.00	33.00	20.01 to 45.98	5.32	0.000	20
Medication Alternatives in ADHD*	33.33	73.15	39.81	27.17 to 52.46	6.47	0.000	27
Developmental Disabilities and Self-Injurious Behaviour*	27.50	72.50	45.00	26.17 to 63.83	5.00	0.000	20
Psychotherapy for Biaxial Diagnoses	36.88	90.00	53.13	44.23 to 62.02	12.18	0.000	32
Opioids, Pain and Addiction	50.00	73.44	23.44	-0.13 to 47.00	2.12	0.051	16
Autism*	61.49	75.29	13.79	3.48 to 24.11	2.74	0.011	29
Antidepressant Compliance*	71.88	75.00	3.13	-22.93 to 29.18	0.28	0.785	8
Pharmacotherapy	39.31	70.34	31.03	21.37 to 40.70	6.58	0.000	29
Anxiety Disorders	79.69	81.25	1.56	-9.81 to 12.94	0.29	0.774	16
	67.31	73.72	6.41	-4.06 to 16.88	1.24	0.223	39

<sup>1</sup> Pre- and post-test evaluation scores were not paired for these two sessions.

\*Results were statistically significant ( $p < 0.05$ ) using Wilcoxon's sign-rank test.

t-tests comprise repeated-measures for pre- to post-test CME evaluation scores except for the first two sessions.

Degrees of freedom (df) = number of pairs minus one.

95% C.I. = 95% Confidence Interval for mean pre-post test change.

PANDAS = Pediatric Autoimmune Neuropsychiatric Disorder Associated with Streptococcal Infections;

ADHD = Attention Deficit/Hyperactivity Disorder.

## DISCUSSION

In general, participants' pre- to post-test scores improved during the CME sessions, suggesting that these educational activities successfully improved participants' basic knowledge of key topics in psychiatry. This improvement was statistically significant in

only 66% of the sessions, possibly due, in part, to relatively small sample sizes, reflecting a low participation rate at some of the sessions. To help overcome this limitation in the future, we will distribute pre- and post-tests to distant sites participating by tele-videoconference. This will help improve CME participation rates, and will provide us with additional data further improving our process of evaluating knowledge transfer.

Study findings are to be considered in light of some methodological limitations. CME questions were not standardized given that each guest speaker created his or her own set of questions for that session. Additionally, it is difficult to comment on the educational significance of statistically significant pre- to post-test change. We did not assess whether increases in knowledge were associated with changes in clinical practice, an issue deserving of additional research. We further note that the two methods for assessing knowledge transfer were not always in agreement; in the case of the session on “Psychogenic Movement Disorders” the percentage of participants passing this session’s test decreased, despite the fact that participants’ overall scores increased slightly from pre- to post-test.

Overall, our findings suggest the viability of the CME half-day sessions, as they indicate that a transfer of basic knowledge associated with participation in these sessions takes place. Hence it is feasible to assess knowledge acquired during relatively brief continuing education events. Our analyses further affirm the utility of employing a repeated-measures methodology for assessing learning in a CME context. Future research is needed to explore the translation of knowledge acquired during the CME events into clinical care.

## FUNDING AND SUPPORT

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## Appendix A: Sample of a Typical CME Programme



*Schulich School of Medicine & Dentistry, Department of Psychiatry*  
**The UNIVERSITY of WESTERN ONTARIO**  
**CONTINUING MEDICAL EDUCATION**  
 Thursday, DECEMBER 13, 2007

### TREATMENT AND RESEARCH WITH PATIENTS WITH BORDERLINE PERSONALITY DISORDER

ST. JOSEPH'S HEALTH CENTRE, 268 GROSVENOR STREET, ROOM DO-104, LORRAINE IVEY SHUTTLEWORTH AUDITORIUM

#### Objectives

**By the end of this session, participants will be able to:**

- review models proven useful in treating Borderline Personality Disorder (BPD)
- review common factors of the models that do work
- begin to separate what is unique and effective from what is a common factor
- understand the essential nature of diagnosing the full personality structure of the patient - or using all of DSM IV TR
- discuss therapeutic challenges facing provision of care to individuals with BPD
- demonstrate familiarity with diverse modes of psychotherapy for patients with BPD
- reflect on challenges to risk assessment associated with affective variability in patients with BPD
- discuss initial findings from an on-going trial of Dialectical Behavior Therapy for patients with BPD

**MODERATOR: Dr. Marnin J. Heisel**

7:30 a.m.	Coffee/Muffins (Only at Shuttleworth)
8:00 a.m.	<b>Introduction Dr. Marnin Heisel</b>
8:05 - 8:20 a.m.	<b>Case Presentation</b> Dr. Mahdi Memarpour, Resident, Department of Psychiatry, UWO
8:20 - 8:30 a.m.	<b>Discussion - Question and Answers</b>
8:30 - 8:50 a.m.	<b>Modes of Psychotherapy with Patients with BPD</b> Ian Feltham MD CCFP FCFP FRCP (Psych), Department of Psychiatry, Regional Mental Health Care – London, UWO
8:50 - 9:10 a.m.	<b>Assessing Suicide Ideation in Recurrently Suicidal Individuals with BPD: Use of Visual Analogue Scales over Multiple Daily Ratings</b> Marnin Heisel, PhD., Departments of Psychiatry and of Epidemiology & Biostatistics, UWO
9:10 - 9:20 a.m.	<b>Discussion - Question and Answers</b>
9:20 - 9:35 a.m.	<b>Coffee Break (Only at Shuttleworth)</b>
<b>PRETEST</b>	
9:35 - 10:25 a.m.	<b>Psychotherapeutic Interventions for Individuals with Borderline Personality Disorder</b> Professor Paul Links, Arthur Sommer Rotenberg Chair in Suicide Studies at the University of Toronto Department of Psychiatry (St. Michael's Hospital).
<b>POSTTEST</b>	
10:25 - 10:55	<b>Discussion with Dr. Links</b>
10:55	<b>Closing remarks</b>
1100 - 12:00	<b>Discussion and residents' luncheon with Drs. Links, Feltham, and Heisel (Room D1-173)</b>

*Editor's Note: This agenda was reprinted with permission of the contributors to illustrate the composition of a typical CME Half-Day.*