

# PSYNAPSE

Spring 2010



## Newsletter of the CPA Section on Psychopharmacology

### IN THIS ISSUE:

<b>From the Editor</b> .....	<b>2</b>
<b>Chair's Annual Update</b> .....	<b>2</b>
<b>The Section Executive</b> .....	<b>2</b>
<b>Section-Related Activities</b> .....	<b>3</b>
CPA Task Force on RxP Authority for Canadian Psychologists.....	3
Future Goal: Call for Greater Participation by Section Members.....	5
<b>Psychopharmacology: knowledge and Harm</b> .....	<b>5</b>
<b>The Importance of Psychopharmacology: A Student's Perspective</b> .....	<b>7</b>
<b>The Future of psychopharmacology at Undergraduate Level:</b> .....	<b>9</b>

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FROM THE EDITOR

Many thanks for your consistent support, we have finally successfully completed this first 2010 electronic newsletter of CPA division of psychopharmacology. We are very fortunate to have contributions from our undergraduate student members, Angela Potes, and Sophia Escobar. Additionally, the work presented in this issue, features an article by the Chair (Dr. Nussbaum) pertaining to the CPA task force on RxP.

Without further ado, I want to thank you, the psychopharmacology division of the CPA, for all your support of the newsletter.

Cordially,

Amir A. Sepehry, PhD student

Editor, Newsletter Psynapse

CPA SECTION ON  
PSYCHOPHARMACOLOGY:  
CHAIR'S ANNUAL UPDATE

THE SECTION EXECUTIVE

The Section has had a year marked by establishing “human infrastructure” for bigger and better things. I want to thank Professor Brian Bigelow for his continuing role as Secretary-Treasurer. Brian has been performing this function for over a decade and provides a wealth of knowledge and expertise that make him a frequent “sounding board” for directions and initiatives. Without forgetting to mention that he has been on the OPA board as Justice Rep and RxP Task Force

and has been very active in promoting RxP in Ontario. I am also pleased to note that former newsletter Editor, Dr. Larry Litman is available to participate in Section activities as our Executive Advisor.

In keeping with the Section’s primary identified goal last year, we are fortunate to have a very active group of very capable, young energetic and committed executives who will continue to lead the Section after the “older triumvirate” (i.e., DN, BB & LL) passes the torch to them so to speak.

First, we are privileged to have Amir A. Sepehry as the current Editor of Psynapse and Executive Member at Large. Amir is a senior doctoral student in the

Department of Psychology at the University of Victoria. He has an extensive background in general physiology, neuropsychology and psychopharmacology. This is the inaugural issue of Psynapse under his editorship and I look forward to many more issues in the coming years.

Stephanie Bass, serving as the Section's Graduate Student Representative, is a doctoral student in the Department of Psychology, University of Toronto. Her planned doctoral research covers in part the effects of stimulant medication on offenders diagnosed with adult ADHD. Angela Potes and Sophia Escobar are jointly serving as Undergraduate Student Representatives. They are in the Psychology Specialists in Behavioral Neuroscience at Concordia University in Montreal. Angela's research focuses on neurotransmitter systems involved in schizophrenia with an ultimate goal of enhancing treatment of this major behavioral disorder. Dr. Robert Ax of Midlothian, Virginia, a CPA and Psychopharmacology Section member continues to provide valuable advice on a range of RxP-related and other topics as a Member at Large. Dr. Ax is one of the pioneers of APA's Division 55 and an accomplished Correctional psychologist

and RxP advocate. He is also an APA Fellow.

I want to extend my personal thanks to each of the Executive Members for helping me, especially during this very hectic Tenure year. It certainly would not have been possible without them.

#### SECTION-RELATED ACTIVITIES

##### CPA TASK FORCE ON RXP AUTHORITY FOR CANADIAN PSYCHOLOGISTS

I participated on a CPA Task Force that was struck to evaluate and provide an opinion as to whether CPA at this time should invest scarce resources to back psychologists' authority to prescribe psychotropic medication with sufficient additional prescriptive training. The Task Force (TF) was very ably headed by Professor Lorne Sexton of the University of Manitoba and a CPA Board Member and met about 8 times via conference call and once in person during CPA last year in Montreal. Professor Sexton encapsulated the current status of the TF recommendation in January's CPA-Newsletter, Psynopsis. The TF was composed of a dozen members from across the country and CPA sections. With one or possibly two exceptions, they were unfavorably predisposed to

## -----Newsletter-----

considerations of expansion of Psychological Practice into the “medical domain.” A number of “traditional” anti-RxP concerns were initially voiced including patient safety and offending physicians (specifically psychiatrists) with whom some TF members felt psychologists have good relationships. Professor Sexton wanted to establish a consensus and this was not an easy task, given that the group was initially polarized with a number of TF members firmly in the middle.

A realistic long-range perspective was required. I first noted that a large number of patients and clients seen by clinical and school psychologists for assessments and interventions are taking prescribed medications and occasionally at least recreational drugs. I then argued that absent knowledge of how psychotropic medications and street drugs affect cognitive, motivational and emotional processes, a psychologist could easily misinterpret psychological test results or client/patient responsiveness to therapeutic interventions. Over a number of sessions, those concerned with safety and competence adopted this position and the emergent consensus was that all graduate students trained in clinically related areas of psychology should have at least a “level 1” course in

pharmaco- psychology that would intimately acquaint them with the mechanisms and effects of the relevant medications and street drugs. Level 2 training would prepare individuals for collaborative prescription privileges with physicians while Level 3 training incrementally requires extensive supervised practice in anticipation of independent prescriptive authority.

Practically, Level 2 and 3 training are possible future goals but immediately, we can raise the existing bar for clinical, school and neuro-psychologists. The more psychopharmacology and pharmacotherapy education tomorrow’s psychologists receive in graduate and undergraduate education; the more natural RxP will flow. This will allow far greater “Within Psychology Consensus” on the issue. It is arguably this internal fractionation that has impeded RxP progress at the political level more than the turf-issue inspired opposition from organized medicine. Additionally, further research by psychologists into mechanisms of drug action and clinical outcomes can only enhance psychology’s claim as a bio-psychosocial knowledge base; a point made by Professor Sexton. We await the CPA Board’s response to the TF report.

FUTURE GOAL: CALL FOR GREATER PARTICIPATION BY SECTION MEMBERS

As with all groups, it is unrealistic to expect that significant progress can occur with only a few people actively involved. Implementation of organizational goals will be enhanced, expanded and hastened by having a larger number of individuals committing to educational, research and organizational activities. The Executive is an open and welcoming group with diverse interests. In closing, I urge all members to come forward and identify where within the broad spectrum you can contribute to this effort.

A relatively easy place to begin is by having a greater turnout at the CPA

PSYCHOPHARMACOLOGY: KNOWLEDGE AND HARM

Worldwide, individuals are acquiring knowledge with the intention of helping citizens in need. This occurs informally, by way of our daily interactions with family and friends or in the clinic, and formally, through research on a global scale. I would like to encourage experts in the field of psychopharmacology and newly

Business meeting in Winnipeg in June. We are negotiating to Have Professor Morgan Sammons (PhD, ABPP and currently Dean for the California School of Professional Psychology at Alliant International University) come as our Section Sponsored Speaker. This was arranged but a family event required rescheduling and this has not yet been resolved. Stay tuned.

In closing, I want to thank you all for your continuing membership and support. I look forward greater Section activity in 2010-2011.

David Nussbaum, Ph. D., C. Psych. Chair

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acquainted students alike to gain awareness of this constantly evolving discipline so that we may strive to minimize harm in the process of helping. To this end, I will provide a brief introduction to the dynamic field of psychopharmacology and introduce several sources of knowledge.

The study of human psychopharmacology encompasses a wide range of substances (e.g., medicinal

## -----Newsletter-----

and non-medicinal substances, prescribed and over-the-counter substances) with various psychoactive properties that microscopically and macroscopically alter brain mechanisms and, subsequently, alter human behavior. Researchers continue to be fascinated by substances that cross the blood-brain barrier and eventually alter neuropsychological functioning. Commonly, drugs are researched for their pharmacokinetic and pharmacodynamic properties, physical and psychological side effects, and biomarker potentials. For example, researchers in psychopharmacology investigate an assortment of psychoactive substances including alcohol, recreational drugs (e.g., party pills, psychedelics, opiates), nicotine, caffeine, psychomotor stimulants, and anabolic-androgenic steroids. They also study drugs used in the treatment of disorders associated with several axes of the DSM, such as personality disorders and neuropsychiatric symptoms due to medical illness (e.g., antipsychotics, antidepressants, or cholinesterase inhibitors) and, on the odd occasion, for the purposes of so-called cosmetic psychiatry. Additionally, medications are studied under the rubric of poly-pharmacy (add-on or concomitant) or poly-therapy (medication with bright-

light therapy) in an attempt to eradicate multiple persisting symptoms. Even though that certain types of medications are suggested for controlling or minimizing specific symptoms or syndromes, they are frequently not considered specifically for the treatment of any single mental or neurological disorder, because they are circulating in the blood stream. This highlights imperative need to weigh the balance between the cure and harm.

We know that psychoactive medications and drugs, along with other agents, often influence the relation between human brain function and behavior. Indeed, hormones, anti-cancer, and anti-inflammatory agents are needed to alter an individual's physiological functioning in order to facilitate management of a condition that is not directly associated with the brain (e.g., cardiovascular infarct, cancers, allergies). However, some such agents indirectly affect brain functioning by causing depressive-like symptoms. Thus, given certain clinical situations, an indirect effect may be seen as a positive treatment outcome or merely as a side effect. It is this knowledge that prompts me to encourage students and professionals to gain expertise in recognizing such agents. It is paramount that students, clinicians,

and researchers become cognizant of the properties of these indirect elements by attending seminars, conferences, and symposiums.

To this end, I would like to emphasize the importance of the Continuing Medical Education (CME) credits and familiarity with a collection of seminal psychopharmacological references such as Stephen M. Stahl's "Essential Psychopharmacology" series; "The American Psychiatric Publishing Textbook of Psychopharmacology"; and "Neuropsychopharmacology": The Fifth Generation of Progress, as seminal to this process.

**Amir A. Sepehry,**

**BA, MSc, (Psychiatric Sciences, U de M), PhD student (Life-span development, UVIC).**

[http://web.uvic.ca/psyc/people/graduate\\_students/sepehry.php](http://web.uvic.ca/psyc/people/graduate_students/sepehry.php)

**THE IMPORTANCE OF PSYCHOPHARMACOLOGY: A STUDENT'S PERSPECTIVE**

Writing about psychopharmacology could be an easy task, especially because of the extensive literature available and the ongoing developing research. Writing about the importance of psychopharmacology for

undergraduate psychology students, however, is less straightforward. My personal opinion is that we must keep ourselves informed regarding understanding of medications and the mechanisms by which they affect intended and unintended consequences in patients suffering from psychiatric syndromes. This appreciation is critical if we are to understand cognitive, emotional, motivational perceptual and motor behavior evident in assessments or in response to various interventions. For example, is a client unmotivated to change or lethargic because of her medications? Absent such knowledge, this becomes very difficult to evaluate.

As a general and personal clinical interest, I will start by briefly reviewing theoretical bases underlying the monoamine approaches to psychopharmacology, since considerable psychotropic medications are related to monoamine neurotransmitter function. I will then explain why the understanding of drug interaction is important to be accounted for. Finally, I will address why students interested in either clinical psychology or pharmacology itself should not keep scientific knowledge apart from its interaction with psychological or psychiatric syndromes. The future sees

## -----Newsletter-----

the direct relationship between science and psychological practice.

The monoamine theories of mental disorders were developed after the discovery of the catecholamines: dopamine, norepinephrine, epinephrine and serotonin. These describe direct relationships between the amine neurotransmitters and the phenomenology and physiology of psychiatric disorders (Cameron, 1999). For example, regarding depression treatments, some drugs have been found to be effective antidepressants. Tricyclics (TCA) block synaptic reuptake of the amine neurotransmitters and monoamine oxidase inhibitors block metabolic degradation of amines, consistently relating these monoamines to depression. The dopamine theory of schizophrenia and norepinephrine theories for anxiety and panic disorders are also good examples of monoamine roles in a spectrum of mental disorders (Smith GC, Copolov D., 1991). Thus, there are several psychiatric disorders found to be related to pathophysiological changes involving the monoamines, where its response to adjusted mono-amine function through prescribed medications is logical and empirically supported (Cameron, 1999).

Beyond the drug administration and behavioral response, understanding drug mechanisms is relevant. For example, appreciation of drug mechanisms can be helpful in understanding interactions between drugs such as why higher doses of antipsychotic medications are often required with smokers. Smoking induces metabolic enzymes that degrade the medications. It is important to know that it is the monoamine theories responsible for drug development. On revisiting the theories, research now focuses on understanding second messenger systems causing gene expression (Chen G. et al, 1999). Once the clinician is aware of the systems mechanisms, it provides understanding for selection of particular medications for optimal relief and has lead to advances in pharmacotherapy (Torres and Horowitz, 1999).

Why should undergraduate students be aware of the importance of psychopharmacology? History has shown the development and usage of medication nowadays. Since the 50's, the development of the early antipsychotics, TCA and benzodiazepines, anxiolytics and mood stabilizers revolutionized the fields of psychology, psychiatry and medicine (Cameron, 1999). Importantly, we must recognize, that the best approach to psychiatric or psychological treatment



## -----Newsletter-----

does not always rely on drug medication (Nagayama H., 1999). But it is the ongoing research of drug therapy and placebo effects that will guide us to the best treatment procedures, whether this means providing necessary information, prescribing medication or their interaction depending on the specifics of the issues, situations and individuals involved. This is why it is important for us, as undergraduates, to understand drug mechanisms and their interactions, and better inform ourselves as future clinicians. Let us try not leaving the science of psychology aside.

This is a call for all of us interested in the clinical fields of psychology to better inform ourselves and to form the best professional networks this field needs. Get yourself motivated, explore the available knowledge and see how they map onto prevailing clinical and mental disorder systems. The present is witnessing an explosion of other systems such as glutamate being central to many mental disorders previously shown to respond to monoamine action. As interested students, we can begin to imagine how the numerous individual neurotransmitter and neuromodulator systems interact to facilitate the extended range of behavioral capacities we enjoy in

functioning humans, and how dysregulation of these precise and sensitive systems diminish those capacities. The marriage between psychology and systematic neurobiology appears bright indeed.

Interested undergraduate students can contact either myself ([angelampotes@yahoo.com](mailto:angelampotes@yahoo.com)) or Sophia ([sophiaescobar@live.com](mailto:sophiaescobar@live.com)) while graduate student may contact Stephanie Bass ([slsbass@gmail.com](mailto:slsbass@gmail.com)) for further information about joining the CPA Section on Psychopharmacology.

**Angela Potes,**

**B.SC Psychology (Behavioral Neuroscience Option), Concordia University**

*Interest:* Angela wants to go pursue a career in Medicine after completing an Master of Science in Neuroscience.

### THE FUTURE OF PSYCHOPHARMACOLOGY AT UNDERGRADUATE LEVEL:

We live in a world that is changing at a speed we cannot control. If you are a psychology student who wants to contribute to find treatment for individuals suffering from a mental condition, understanding and learning

## -----Newsletter-----

more about psychopharmacology can be a great way to do it. Psychopharmacology covers the influence of drugs on information processing and behavior, including sensory-perceptual, cognitive, emotional, motivational and motor domains.

In the past 50 years, powerful biomedical and biophysical advances have allowed identification of mechanisms and development of new chemical compounds that alter human functions, leading to find effective treatments for many different diseases (Smart & Vallance, 2006). The future in pharmacology is very promising. With new technologies on the horizon, pharmacology will lead to a better understanding of humanity. Remarkably, pharmacology is a multidisciplinary science, which means that it involves contributions across many different fields: biology, anatomy, medicine, physiology, chemistry, and psychology among others. This affords a range of opportunities for study and developing expertise. From an employment/career perspective, one could also be a researcher, a teacher, work for private industry, or within the public sector, in urban or rural settings.

Students often believe that each root of science is separate from the other. We learn to be psychologists and only be interested in the specialization we take, but the reality is different and we do not realize that science in general, is multidisciplinary. Often undergraduate psychology students do not see the connection between traditional psychology and neurobiological science including psychopharmacology. However, recent advances in even traditional psychology are being related to neurobiological mechanisms and processes. Many patients in psychological therapy are concurrently being treated with medications. Appreciation of the mechanisms and effects of drugs on behavior is necessary for accurate interpretation of test results to psychotherapy interventions. Ultimately, it would be very helpful and practical if clinical psychologists were trained to prescribe appropriate psychotropic medication so that a single psychology practitioner could administer and coordinate different aspects of treatment.

Mastery of different approaches, (i.e., psychological and pharmacological), would foster a more critical evaluation of which patients would optimally respond to psychotherapy, pharmacotherapy or an integrated and coherent combination of

## -----Newsletter-----

these two modalities. We will have the capacity to understand different problems related to pharmacology from a psychological perspective, therefore we could develop new treatments and alternatives for our patients. If we have knowledge that is more multidisciplinary, it allows us to connect to diverse ideas and find solutions from different fields. In the end, patients will have greater alternatives for their treatments.

We need to focus on the present and find a way in which we can be part of the change. Do not get behind read about pharmacology, educate yourself about this science, think in ways you could help to improve psychology and be actively involved in the progress of science in general, this will help you to grow as a person and scientist.

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Interests: Sophia is interested in understanding the systems involved in the neuropsychology of musical memory and help patients with Alzheimer's disease to gain access previously lost memories using treatments that combines music with medication.

