

Meet Marlene Oscar Berman, Ph.D.



Marlene Oscar Berman, Ph.D., professor of psychiatry, neurology, and anatomy & neurobiology at Boston University School of Medicine as well as Veterans Affairs research career scientist. Dr. Oscar Berman recently won the Henri Begleiter Excellence in Research Award at the Research Society on Alcoholism's annual meeting in June 2011.

Writer Sherry Wasilow interviewed Dr. Oscar-Berman from her office at Boston University School of Medicine.

SW: Please describe what has motivated you in your career?

MOB: The short answer is that my inspiration came primarily from my mentors.

Here is a longer answer: My father was a butcher; my mother was a stay-at-home mother. Until I was 19, we lived in a house attached to my father's store in a lower middle-class neighborhood. There always seemed to be a cultural difference between my parents' world and the "outside world," which I was taught by example to see as a distant, untrustworthy establishment of privilege. Survival, not the broadening of intellectual and emotional experience, was the guiding motive of most of the people in my family. Both of my grandmothers had lost their husbands when the youngest of their children were infants.

Of my more than 25 first cousins, I was the only one to get a college education. My desire to go to college began at summer camp. When I was nine, I was sent to a camp for underprivileged girls. I hated that first summer because the whole environment was strange and unfamiliar to me, but during the next eight summers I came to feel wanted and valued, and I wanted to feel that way all the time. The counselors provided positive role models for me. Most of them were college students from upper middle-class families; most of them were also psychology majors. I wanted to be like the counselors, so I set as my goal going to college and majoring in psychology.

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I enrolled in the academic program of my high school, took a foreign language, algebra, and geometry, and worked very hard learning everything I was supposed to learn. I wound up 10th in a class of 356, and won a scholarship to the University of Pennsylvania. I majored in Psychology. However, I couldn't find anything in my study of psychology that satisfied my need to "fit in," to find a niche for myself. Finally, in a wonderful course in Physiological Psychology and in an "independent study" course with a special professor, I discovered not only how to conduct an experiment, collect data, and write up the results, but also about the

powerful influence that a mentor relationship can have on future growth, creativity, and development. The trust in and support of a young student by a revered professor can be critical. For me it was more than critical, it was life changing, since I had not yet left the values of my parents behind.

Because of my love for independent research that I had conducted in my senior year at college, and with the continued encouragement from my first mentor, I decided to go to graduate school. At Bryn Mawr College, my advisor and his wife also were superb mentors. They treated me like a person, instead of like the naive, immature, shy, blundering kid I felt like inside. I've known them for over 50 years now, and they have always been kind, fair, and unselfishly giving of their time, their talents, and their Christmas festivities around a warm fire. Their influence on my values, my career, and my life cannot be minimized. I have tried, through their example, to guide my students and help them grow into happy and creative teachers, scientists, and clinicians.

SW: Please describe your current research.

MOB: Presently, much of my research focuses on the effects of long-term chronic alcoholism. Emotion dysregulation may underlie addictive disorders such as alcoholism, which in turn may further alter emotional states. Alcoholism-related abnormalities in brain centers controlling emotional perception and regulation may differ for men and women (<http://www.scientificamerican.com/article.cfm?id=womens-response-alcohol-gender-specific-treatment>), and can differentially alter the course of alcoholism directly, by affecting sensitivity to feedback, as well as the ability to make economic, social, and health-related decisions. My research addresses all of these issues by using neurobehavioral tests together with neuroimaging measures of brain structure and function.

SW: How did you arrive at this research focus?

MOB: The research experience that I had as an undergraduate and graduate student in Psychology was conducted with nonhuman animals. In 1969, while I was a postdoctoral student in a monkey laboratory at Harvard University, a colleague from the Boston VA Medical Center enticed me to learn about human neurological disease.

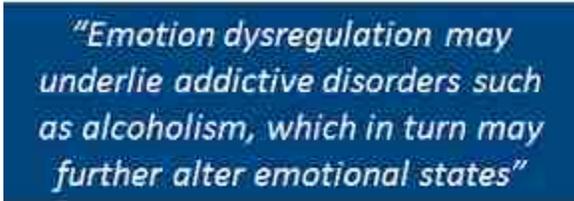
The following year, I began to work with alcoholic Korsakoff patients at the VA and to study the cognitive underpinnings of this devastating neurobehavioral syndrome. In addition, I was able to conduct research in the general area of behavioral neurology; my work included the analysis of perceptual, motivational, and cognitive deficits that accompany human brain damage unrelated to alcoholism.

However, by 1980, it became clear that I wanted to devote more of my research efforts to the study of alcohol abuse and alcoholism. In part this was because the alcoholic men whom I

studied at the VA showed signs of brain damage that were not obvious to most other researchers at the time, but were clearly apparent to me based upon my early work with nonhuman animal models of brain impairments. I felt it was important to share these observations with the scientific community.

In 1981, I was awarded a grant and a Research Scientist Development Award from the National Institute on Alcohol Abuse and Alcoholism, as well as VA funding. With this combination, I was able to direct a broadly based research program on brain-behavior relationships in alcoholism. Our studies examined perceptual and cognitive dysfunction in alcoholic men across a wide age range, and our findings indicated that alcoholism and aging had synergistic effects on specific neuropsychological functions, especially emotional perception (<http://healthland.time.com/2009/08/11/neurological-clues-to-alcoholism/#ixzz1faB8F06D>).

In 1986, we began to focus our investigations on emotional abnormalities in alcoholic and aging individuals, and we expanded our investigations to include women as well as men. Presently, our program encompasses collaborating investigators from numerous disciplines affiliated with several services at the Boston VA Healthcare System and our academic affiliate Boston University School of Medicine, as well as the Neuroimaging program at Massachusetts General Hospital.



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The common theme of my research program is the search for an understanding of the underlying brain mechanisms responsible for perceptual processing deficits (visual, auditory, tactual), cognitive ("intellectual") dysfunctions, and abnormal emotional and motivational responses that result from brain damage, especially as a consequence of long-term chronic alcoholism (http://hamsnetwork.org/brain_damage/). We also are addressing real differences between men and women with respect to how alcoholism impacts the brain and behavior.

SW: What impact does your work have on people's day-to-day lives?

MOB: Although our work addresses basic scientific questions regarding an understanding of alcohol's effects on brain and neurobehavioral functioning, it also has practical and clinical significance. For example, one immediate application of our findings is that they provide a useful marker of significant changes in brain function and structure in alcoholics who may be in the early stages of alcohol-related cognitive and emotional dysfunction, thereby giving a timely warning about the dangers of continued use.

Because alcoholism affects men and women differently, our findings have different implications for the two genders.

Our findings also have practical applications for the treatment of patients. Knowing which brain regions have impaired (and spared) functions during specific tasks like memory encoding, motoric stability, and emotional processing, allow researchers to suggest targets for pharmacological therapy.

In addition, by demonstrating specific changes in alcoholic and nonalcoholic elderly participants, our research has led to recommended strategies for real-life adjustment. For example, because we found that emotional reactions to negative stimuli were compromised more than to positive stimuli, we recommended a regimen of positive reinforcement (vs. negative reinforcement) for teaching new materials to alcoholic individuals.

SW: What would you like to see happen with addiction research?

MOB: My visions for the future of addiction research center upon increased cooperation among investigators having diverse areas of expertise. This already is happening as evidenced by collaborations among alcohol researchers in the USA, as well as internationally through the Research Society on Alcoholism, the European Society for Biomedical Research on Alcoholism, and the International Society for Biomedical Research on Alcoholism. Multidisciplinary collaborations eventually will be able to determine such factors as at-risk genetic markers, brain vulnerabilities, and individually tailored treatment options.

SW: Any final words?

MOB: I believe that the addictions, while having common themes, ultimately affect individuals differently. This is true for risk factors, for the direct and indirect effects on the body and mind, and for the ways people respond to interventions and treatments. We as scientists are getting closer to being able to describe some of the common themes, but we have much more work to do.

More information about Dr. Oscar Berman is available at: <http://www.bumc.bu.edu/busm-bns/faculty/marlene-oscar-berman-phd/>