

## SPECIAL ISSUE

# Following Neal Miller's Footprints: Integrating Biofeedback With the Psychodynamic, Relational, and Intersubjective Approach

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Keywords: Neal Miller, John Dollard, biofeedback and psychoanalysis, emotional regulation, self-regulation

*This article provides a brief review of Neal Miller's translation of psychoanalytic theoretical concepts into operational behavioral research and explores relevant interactions of clinical biofeedback and psychoanalytic practice, both now and in Miller's time. Presently, psychoanalytic psychotherapists are more concerned with both the analyst's and the analysand's contribution to the intersubjective field of the therapeutic endeavor than with modifying biologically based, instinctual urges, as they were in Miller's time. Current psychoanalytic theory translates directly into the biofeedback therapeutic situation via the exploration of interpersonal relationship dynamics, or the intersubjective field, which includes the patient, therapist, and biofeedback instrumentation. All figure significantly in the patient's acquisition of a biofeedback task.*

### Introduction

It is well accepted that Neal Miller is the "father of biofeedback." Although the existence of other parental figures in the development of the field is acknowledged, Miller clearly provided a platform for the birth of the field with his experiments on autonomic conditioning (Miller, 1969, 1978; Miller & DiCara, 1967). In addition, although many readers of this publication might not be aware of it, Miller was also heavily involved in a field that many might consider alien in relation to biofeedback: psychoanalysis. Miller, together with John Dollard, spent a significant portion of his career attempting to integrate learning theories with psychoanalysis. This venture began very early in his research career, when Miller decided to visit Vienna to undergo analysis with Freud. Unfortunately, he could not afford to pay Freud, so he was analyzed by Heinz Hartmann, a psychiatrist and psychoanalyst who is considered one of the founders and principal representatives of ego psychology. Much later, via his collaboration with John Dollard, the books *Social Learning and Imitation* and *Personality and Psychotherapy* set the stage for

concentrated efforts toward an integration of psychoanalysis and learning theory. These two publications led to the inclusion of Dollard and Miller in the now classic book on personality theories by Hall and Lindsey (1957). Furthermore, *Personality and Psychotherapy* had a significant influence in the field of psychotherapy, becoming central to the development of clinical psychologists for many years.

The aim herein is to discuss whether Miller's different fields of interest can indeed be integrated. That is, is it possible that there is common ground between psychoanalysis and biofeedback? The venture undertaken by Miller as compared with our own reveals an interesting contrast.

Miller, in a combined effort with John Dollard, aimed to integrate behavioral and psychoanalytic concepts. Interested in the underlying theory, they translated psychological analytic concepts into behavioral terms. The aim within the present attempt at integration is somewhat different in that we have set out to show the clinical advantage of combining the psychoanalytic view of therapy with biofeedback procedures.

Miller encountered a different psychoanalysis than that which one discovers today. Psychoanalysis in the 1930s, 1940s, and 1950s was focused on elaboration of the libidinal instinct theory, which proposed that libido, understood as an instinctual sexual drive, generated motivation for all behavior, either directly or as a result of frustration and/or repression. Psychoanalysis in Miller's day was believed to cure symptoms resulting from libidinal frustration, by discovering the unconscious source and thereby weakening the power of the unconscious, frustrated instinct on behavior and belief. In Miller's view, such a biologically based theory could be tested if translated into behavioral terms.

In the present day, psychoanalysis focuses on some very different concepts. Shedler (2009) suggests the following points as representing current psychoanalysis:

1. Focus on affect and expression of emotion
2. Exploration of attempts to avoid distressing thoughts and feelings

3. Identification of recurring themes and patterns
4. Discussion of past experience (developmental focus)
5. Focus on interpersonal relations
6. Focus on the therapy relationship
7. Exploration of fantasy life

Miller attempted to integrate psychoanalysis with the behavioral concepts that were available in his time. We benefit from the fact that we can use current research and concepts that were developed by Miller. We are able to integrate psychoanalysis with biofeedback, which Miller could not do at the time simply because biofeedback was born a decade later.

Herein, we propose to follow up on Miller's monumental efforts by discussing a plausible integration of current psychoanalysis and behavioral medicine/biofeedback.

Many biofeedback practitioners today see themselves connected to cognitive behavioral therapies (CBT), but not to psychoanalysis. As one of the authors wrote elsewhere (Hamiel and Rolnick, in press), the term common law marriage can be used figuratively to describe the relationship between biofeedback and CBT. They "live together" de facto; both are short-term, goal-directed interventions that aim to maintain and reinforce their evidence-based status. Psychoanalytic concepts, at first glance, might seem somewhat incompatible with biofeedback, as biofeedback concepts (in Miller's paradigm) focus on physiology and give little attention to states of mind and mental activity during biofeedback training, whereas psychoanalysis, for the most part, has not sufficiently considered neurophysiology (although neuropsychology today is attempting to correct this).

We assert that the psychoanalytic frame of reference can enhance biofeedback and biofeedback-assisted psychotherapy. Although Miller's view of biofeedback focused primarily on learning concepts, newer models of biofeedback focus not only on the physiological data but also on the subjective data ("What went on in your mind when your physiological reading changed"?). The intersubjective revolution in psychoanalysis, as well as our experience and training as psychodynamic psychotherapists, suggests to us that the interaction between the therapist and patient should be the center of attention. It is presently suggested that within a biofeedback session, there occurs a replication of an early interaction between parental figure and helpless child. The specific way in which the therapist (parental figure) interacts with patients regarding their efforts to self-regulate is crucial for the success of the psychophysiological psychotherapy. Hence, the current discussion follows in Neal Miller's footsteps in that there is a similar attempt to integrate various frames of reference.

#### A QUOTE FROM MILLER ON HOW HE GOT TO PSYCHOANALYSIS AND BACK

*"I still remember the excitement when the idea hit me one evening that there were a number of functional similarities between Freud's concept of repression and Pavlov's concept of inhibition, which he believed was responsible for the experimental extinction (decline) of a conditioned response during a series of non-reinforced tries. In both cases the underlying basis for the response was not removed but rather was suppressed by an inhibition. This was demonstrated by the fact that, when the inhibition was removed, the response would reappear. Furthermore both Freud's repression and Pavlov's inhibition had a tendency to generalize from the original stimulus to other similar ones.*

*"Certain stages of sleep weaken Freudian repression so that repressed tendencies can appear more readily in dreams. Would sleep have a disinhibiting effect on an extinguished conditioned response? The free association method plus some of the phenomena of dreams and neurotic behavior indicated that in addition to generalizing along the dimension of stimulus similarity, both the repressed tendency and the repression tended to generalize along the lines of previous or subsequent association.*

*"I wrote to Freud, who encourage my general plans in his letter to me, but replied that with his health declining and so many relatives depending on him for support, he unfortunately could not give me the reduced rates that he wished could and he knew I would need. He recommended me to one of his pupils, Heinz Hartmann, who accepted me for a didactic Analysis. After an interview with Anna Freud the Vienna Psychoanalytic Institute admitted me for training. The most important part was my own analysis. This certainly was the best way to become acquainted with the power of the unconscious and the reality of some of the phenomena Freud had described. [Parenthetically, Heinz Hartmann became a preeminent American analyst and is best known for his highly organized theoretical contributions to ego psychology.]*

*"For example, late one afternoon I was preparing for an eagerly anticipated date with an especially attractive and sexually exciting girl I had just met and thought I had reason to believe would be glad to cooperate. But I simply could not find anywhere on the top of my desk or elsewhere the slip of paper on which I had written her name and phone number. I remembered all too well that in the hour that morning the analysis of a dream I had had the previous night was interpreted as revealing an unconscious fear that a date with that girl would lead to death. Rationally deciding that such a fate was incredibly improbable, I firmly determined not to be defeated by an inhibition. If necessary, I would systematically search every inch of the room until I found that slip of paper. Then, I relaxed completely and to my surprise found my hand opening a drawer, fumbling in a far corner and pulling out that slip of paper!! The date was pleasant but, perhaps because of unrealistic optimism or unconscious lingering inhibitions, my hopes were not realized.*

*"Another of the important gains was the acquisition of techniques for getting a better understanding of myself in certain emotional dilemmas and how to cope with them. Although this may not have produced immediate outstanding change in my behavior, I felt that it gave me a considerably wider margin of safety in dealing with any severe stress I might encounter." (Coons, 2009)*

## Our View of Integration a Century after Miller's Birth

Biofeedback can function as a potent addition to modern psychodynamic therapies in several ways. Although these forms of therapy struggled in the past to achieve recognition in terms of empirical validity, they have increasingly been subjected to empirical research, with significantly positive results (Milrod, Buchs, & Shea, 2007; Shedler, 2009).

Classical psychodynamic approaches suggest that once conscious and unconscious fantasies and conflicts underlying anxiety disorder symptoms are identified and brought into the therapeutic dialogue, they can be better understood and thus rendered less threatening.

## Biofeedback as a Bridge to Psychotherapy

Many people with stress-related psychophysiological illnesses feel insulted when their physicians make a referral to a psychiatrist/psychologist because, to them, the referral implies that their illness is not real and is "all in their heads." Indeed, such referrals are often unsuccessful (Astin, Shapiro, Eisenberg, & Forsys, 2003). When the referring physician is empathic with the patient's point of view, addresses the patient's stress, and then advertises biofeedback as something that will help the patient achieve self-regulation, there often occurs an increase in willingness to accept such a referral, even if the referral is to a mental health professional. Accordingly, Wicramasekara (1988) conceptualized referral for biofeedback as a Trojan horse maneuver, which "disguises" biofeedback as a benign quasi-medical procedure that the patient can accept without narcissistic injury. Often, after trust has developed, the patient will abandon some psychological defenses, acknowledge psychological problems/distress, and be willing to work on them. The display of physiological information provides patients with the evidence they need to connect unaware/unconscious cognitive and emotional factors that affect their symptoms.

Freud called dreams the "royal road to the unconscious." Perhaps biofeedback and psychophysiological monitoring could be considered a "second royal road to the unconsciousness." Various case studies have demonstrated that psychophysiological measures can detect emotional reactions that are somewhat blocked from consciousness (Bechara, Damasio, Tranel, & Damasio, 1997). Biofeedback-assisted psychotherapy confronts patients with their physiological reactions and gently insists that any discrepancy between actual reactions and perceived feeling be reflected upon (Adler & Adler, 1989). The therapist can question the patient as to what went on in his or her mind when changes in the physiological reading

occur. This procedure usually helps the patient to identify what is bothersome and gradually to develop insight or, in psychodynamic terms, the observing ego. In many anxious, phobic patients, the neutral observing ego has been infected by an extremely critical and self-sabotaging superego that never stops berating and threatening (Wurmser, 2009). Successfully learning a biofeedback task requires silencing, at least temporarily, these incessant thoughts.

According to Krystal (1988), patients must first become observers of their inner states and next develop affect tolerance. Given that biofeedback allows the therapist and patient to share affect observation, their frightening nature can be decreased, and patients can then be taught to recognize their emotions as signals that are self-limited in duration and controllable. Once patients recognize and accept their emotions, they can begin to verbalize their emotional states with the therapist as teacher and guide, helping the patient to find the correct words to describe feelings. The therapist must be alert to nonverbal cues regarding emotional states. Doing biofeedback, the patient learns to dissociate the part of the self that observes (his or her observing ego) from the part of the self that experiences sensation. Acquiring this skill helps create emotional distance between the sense of self and the dysfunctional physiology (Adler & Adler, 1989).

## Biofeedback and the Therapeutic Alliance

A vital prerequisite for therapeutic efficacy is a good relationship between therapist and patient (Hardy, Cahill, & Barkham, 2007). This has been demonstrated in all types of therapy, recognizing that the factor influencing whether or not thermal biofeedback learning will occur is the quality of the interaction between the experimenter/therapist and the subject/patient. Taub and School (1978) called it the "person factor." In fact, research has demonstrated that the therapeutic alliance is by far a better predictor of therapeutic success than the use of specific techniques (Norcross, 2002).

Initially, it may appear that the biofeedback equipment dilutes the human/personal element of therapy. In other words, the focus on a machine may produce a mechanical/technical aspect to the therapy, such that the introduction of an "inanimate therapist" into the consulting room may have a significant effect on the therapeutic relationship. Rickles (1981) and Adler and Adler (1989) noted that the transference (patient's idiosyncratic reaction toward the therapist) might be altered as a function of the biofeedback equipment. This point is increasingly relevant today, as the computer's position within the dyad is made more substantive, given it is able to provide reliable scores and

even provide vocal analysis regarding the patient's psychological state.

Hardy et al. (2007) suggest that there exist three central stages in the therapeutic relationship that require consideration and acknowledgment: (a) establishing the relationship, (b) developing the relationship, and (c) maintenance of the relationship.

In the stage of relationship establishment, the main objectives are expectancies, intentions, motivation, and hope. Biofeedback makes clear what is expected of the patient; the patient must achieve physiological regulation. Unlike many other interventions, the intention is clear (balancing the autonomic nervous system, i.e., "make your finger temperature rise"), and hence, motivation is usually increased and hope is enhanced.

During the stage of relationship development, three elements are considered. First, the patient needs to trust the therapist; next, the patient must open to the therapeutic process; and finally, the patient must commit to working with the therapist. Biofeedback is likely to be a valuable addition as it may be safe to assume that trust in a therapist who uses medical/scientific explanations will be built more quickly. Openness to the process is achieved via the dialogue that occurs between therapist and patient about the possible interpretations of physiological activity. The movement between subjective and objective sources of information allows the therapeutic dyad to further explore the subtle changes in the patient's thoughts and emotions. Commitment to the therapeutic relationship is achieved once the patient learns that self-regulation can be exacted via continued exploration of their internal world and their continued at-home practice (Rolnick, 1999).

A recent review has indicated that maintenance of the therapeutic relationship relies on the following: patient's continued satisfaction, ability to produce a working alliance, patient's ability to express emotions, and patient's experiencing a changed view of self in front of others (Hardy et al., 2007). Biofeedback training is likely to produce satisfaction in that the patient not only succeeds in regulating arousal but also receives external validation of this success. The working alliance is strengthened as combined observation of readings and shared goals help to solidify the bond. The patient's growing understanding of his or her ability to influence physiological reactions facilitates the internalization of a changed view of the self.

### Intersubjective Aspects of Self-Regulation

Relational and intersubjective therapy, originally based on work by Winnicott (1971), and later Bollas (1987) and others (Stolorow, 1999), conceive anxiety disorders to be a

function of poor ability to self-regulate, a capacity that typically develops throughout infancy via interaction with parental figures. Recently, significant other relationships have been conceptualized as operating like an ego function by providing stabilization and emotional regulation throughout life (Bacal, 1995).

The psychodynamic formulation of panic disorder, in which neurophysiological factors have been integrated with psychodynamic constructs, provides insight into this approach (Busch, Milrod, & Singer, 1999).

The biosocial theory proposed by Linehan (1993) asserts that individuals with emotional disorders are biologically vulnerable to experiencing emotions more intensely than the average person and also have more difficulty modulating their intensity. In psychophysiological terms, they are high reactors with a very limited ability to calm down. The second element in Linehan's (1993) theory states that emotional disorders develop during childhood wherein an invalidating environment contributes to emotion dysregulation. More specifically, the issues are that parents fail to teach children how to label and regulate arousal, how to tolerate emotional distress, and when to trust their own emotional responses as reflections of valid interpretations of events. Therapy conducted with biofeedback calls for validation and empathy and provides for the acquisition of self-regulation of dysphoric affects via biofeedback training.

### Summary

We have attempted to provide a brief view of Neal Miller's cross-pollination of psychoanalytic concepts with operational behavioral research, and the derived clinical application of biofeedback and psychoanalysis both now and in Miller's time. When Miller was in Vienna, and when he worked with John Dollard, he met a different psychoanalysis than that which exists today. Presently, psychoanalytic psychotherapists place more and more emphasis not only on instinct modulating affect but also on the healing effects of a therapeutic relationship and on the importance and contribution of both the analyst's and analysand's psyches to the subjectively experienced relationship and intersubjective field. As discussed, current psychoanalytic theory translates directly into the biofeedback treatment situation via the exploration of interpersonal relationship dynamics between patient, therapist, and biofeedback instrumentation. It appears that the wheel of fate has completed a cycle begun by Neal Miller!

### Acknowledgments

This article is partly based on Rolnick, Gal, Bassett, and Barnea (in press). The contribution of biofeedback in the

treatment of anxiety disorders. In M. S. Schwartz and F. Andrasik (Eds.), *Biofeedback: A practitioner's guide* (4th ed.). New York: Guilford Press.

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