

PROFESSIONAL ISSUES

Positive Aspects of Side Effects: Part II. Treating Stress

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Part I discussed the importance of practitioners learning to recognize the symptoms and side effects associated with different treatment approaches and the role of those side effects in the specific treatment approach. It is also important for practitioners to learn to differentiate (a) between symptoms and side effects that the client previously experienced or is currently experiencing outside of treatment and those that first occur during treatment, (b) between those that seem to be transient and those that are more durable, and (c) between those that may result in a client's becoming dysfunctional in daily life and those that have less severe impacts. Clients have a right to be informed about the symptoms and side effects that are most likely to occur during treatment and to decide whether to proceed with the recommended treatment and thus take the risk of reexperiencing distressing symptoms, discharges, or side effects. Practitioners need to be able to anticipate the likely side effects of the treatments they provide and know how to minimize and/or eliminate negative impacts on clients. Practitioners must also know when to consult, when to perform a reassessment or diagnosis, when to refer, and when to seek consultation or supervision.

Introduction

Part I of this article defined the terminology commonly used in different treatment approaches to refer to symptoms and side effects (Striefel, 2007). It also discussed the role played by side effects in different treatment approaches and made it clear that many side effects are positive and can be used to the client's benefit by a competent practitioner. Side effects are a desirable aspect of successful treatment, provided that the practitioner knows how to prepare the client for occurrence of these effects during the ongoing informed consent process and provided that the practitioner knows how to modify the treatment approach used to minimize or prevent harmful side effects (e.g., having a client overwhelmed by negative side effects during or between treatment sessions). So what is a practitioner to do? Clearly, practitioners should expect to encounter side effects and should be competent in dealing with them in an appropriate manner that meets or exceeds the expected standard of care.

Why and Where

Why do side effects occur and where do they come from? Although there is no clear answer to this question, the published clinical and research literature does provide some guidance and information, and it varies somewhat based on the training, experience, clinical orientation, and type of patients with whom the writer of the specific article has worked (e.g., Schultz & Luthe, 1969; Schwartz, Schwartz, & Monastra, 2003). All side effects seem to be related to stress at some point in life, and they may be indicators of residual thoughts, feelings, emotions, physiological sensations, and/or behaviors that have been repressed as a defense mechanism, as the individual did not have the resources to deal with an event when it occurred. For example, a child who is sexually abused at a very young age may learn to disassociate to survive. Or it may be that symptoms were not experienced at the time of an accident or event because of medications used to suppress pain. For example, Schultz and Luthe (1969) discussed clients who experienced severe pain during autogenic training in some body location where a limb was broken and the pain was masked using pain medication. In addition, there may be other reasons, which may become clearer in the next section. The body strives to maintain homeostasis, but stress over time may result in the malfunctioning of the brain and other bodily regulatory functions. Othmer, Othmer, and Kaiser (1999) called this the kindling model of functional disorders.

Stress

Whenever an individual experiences changes in his or her internal (e.g., physiological) or external environment, adaptive or maladaptive reactions are likely to occur. It is adaptive to respond to changes in the external environment by being aware of the environment. For example, assume you are walking deep in the forest of Yellowstone National Park, where you know that grizzly bears live. You hear a sudden noise, and your physiology makes an automatic, very rapid shift that can be called a startle response; you exhibit a physiologically heightened sense of arousal that prepares you for fight or flight. This automatic response is a very adaptive survival instinct that seems to be present in most people.

A second adaptive response is a little slower in occurring and is mediated by cognitive processes. For example, in the previous example, when you look around and see a deer rather than a bear, you consciously conclude that you are in no immediate danger; therefore, you shift your physiology to a more relaxed and less aroused state. Or you look around and see that, in fact, it is a grizzly bear, and you climb high into a tree or take such other action as may be needed to survive the encounter, including, but not limited to, fighting or playing dead. Playing dead is not always a good option, especially when it is a male bear that is out hunting because he is very hungry. He is likely to say, "Ah, another dumb one who thinks I won't eat him." The individual who is not attentive and/or whose physiology does not prepare for fight or flight or some other adaptive response is likely to be severely injured or killed when unexpectedly encountering the grizzly bear. We would say that such an individual had a maladaptive response to the situation. Most of the patients we see have some sort of maladaptive response to the stress in their daily life.

Our physiology has evolved so that it strives to maintain homeostasis both when encountering internal environmental changes and when they are external. For example, we do not have to attend to our breathing in most situations. It automatically adjusts to changes in the demands that are placed on the body, as does our heart rate, blood pressure, and other physiological parameters. If the stress encountered is too severe or lasts too long, it may exceed the body's ability to maintain homeostasis. In such cases, the individual will experience a physiological or psychological breakdown that has what are commonly called the symptoms of a medical or psychological illness, disease, or condition. Individuals experiencing such symptoms often seek or are referred by others to health care practitioners in the hope that their condition can be assessed, diagnosed, and successfully treated.

In clinical practice, we encounter patients who are overreactive, (i.e., patients who respond to many or most changes in their environment as if there were a danger present when there is in fact none present) and patients who underreact to changes in their environment (e.g., the learned helplessness and hopelessness that is often correlated with being depressed). We seldom work with patients who have well-developed adaptive skills and strategies, unless it is to do peak-performance training. The patients whom we see have nonfunctional or maladaptive behaviors that cause them pain and/or suffering on a physiological, cognitive, behavioral, and/or psychological level.

When an individual is stressed in any way, he or she experiences a variety of physiological changes, consciously or unconsciously, that prepare him or her for fight or

flight (Cannon, 1932; Selye, 1974). The physiological stress response is hypothesized to go through three stages: alarm or arousal, resistance, and finally exhaustion (Selye, 1976). For example, during an emergency situation caused by fear, anger, or pain, the sympathetic nervous system is dominant and produces changes such as increases in heart rate, blood pressure, sweating, respiration, and cardiac output, or what we call the fight-or-flight response (Andreassi, 2000). When the emergency is over, as perceived by the individual involved, the parasympathetic nervous system takes over, and these various physiological systems return to a more normal, homeostatic state. Of course, some individuals do not recognize when the emergency is over, and their physiological system remains overly aroused, leading to exhaustion, illness, and even death. Let me use as an example acute stress disorder.

According to the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (*DSM-IV*; American Psychiatric Association [APA], 1994), when an individual experiences or witnesses a traumatic event that involves threatened or actual death, serious injury, or a danger to the physical integrity of the individual or others and the person responds with extreme fear, helplessness, or horror, the individual may, during the experience or afterward, exhibit dissociative symptoms such as the following: "a subjective sense of numbing, detachment, or absence of emotional responsiveness; a reduction in awareness of his or her surroundings (e.g., being in a daze); derealization; depersonalization; or dissociative amnesia (i.e., inability to recall an important aspect of the trauma" (APA, 1994, p. 432).

The trauma may well be reexperienced in thoughts, images, dreams, flashbacks, and so forth, and the individual may well avoid stimuli that remind him or her of the traumatic event (when he or she can control it). The individual may exhibit marked symptoms of anxiety such as sleep disturbances, irritability, inability to concentrate, and so on, and he or she may be distressed or impaired to the degree of being nonfunctional in many areas of daily life. In addition, the symptoms may last for a minimum of 2 days and a maximum of 4 weeks (APA, 1994). If the symptoms differ or last longer (e.g., months or years) or other variables associated with the trauma differ, the diagnosis will be different. The symptoms of acute stress disorder do, however, allow us to see why and how some symptoms reoccur during treatment and why we call them side effects. But in reality, they are the same complaints that were/are used to make a diagnosis and can therefore be used by the practitioner to predict, to some degree, what kind of possible side effects the client might experience or reexperience during treatment. Thus, these symptoms can

also be used to help the practitioner to discuss with the client possible risks and benefits of treatment, so the client is in fact informed when giving consent rather than surprised when such negative side effects accompany treatment.

It should be noted that sometimes a client reports experiencing a side effect that he or she has not previously experienced. Such side effects seem to fit a different category than those that have previously been experienced as symptoms (e.g., flashbacks). This kind of side effect seems to be part of the presenting problem that needs to be resolved during the treatment process. The newly, previously unexperienced side effect may well be truly induced by the treatment approach and may, especially if severe, suggest the need for an assessment as to whether all the comorbidities have been identified and diagnosed and whether the correct treatment approach is being used, and it may suggest the need for consultation or even referral to a more skilled clinician (Demos, 2005; Hammond, 2001; Ochs, 2006). Of course, newly experienced side effects may also occur by chance because of the client's history and may be strengthened by the consequences or contingencies that occur. Practitioners must take care not to reinforce and thereby strengthen inappropriate or harmful side effects associated with treatment.

There is a wide variety of approaches for dealing with both symptoms and side effects. In addition to the references given, I encourage readers to search the literature and Internet for other appropriate areas of study, for example, eye movement desensitization and the Brownbacks' work with dissociative identity disorders.

Contraindications and Other Cautions

Demos (2005) identified several contraindications and cautions to consider in deciding whether to provide neurofeedback training. They are similar for other biofeedback and applied psychophysiological treatments, and decisions will vary based on the background, training, and competencies of the practitioner and various characteristics of the potential client. Some considerations follow and include items that I have added for consideration from an ethical or legal perspective.

1. Does the client have the time and financial resources to complete the treatment process?
2. Does the client have a diagnosis or Axis II disorder for which some other treatment is deemed the treatment of choice or in which some other treatment should occur before or simultaneously with biofeedback/neurofeedback?
3. Does this client have a diagnosis that requires treatment by a practitioner who has considerable experience in treating serious mental health problems along with experience in doing biofeedback? Do I have that experience and am I legally authorized to provide the needed treatment?
4. Is biofeedback or neurofeedback a reasonable treatment option (e.g., some individuals with a borderline personality disorder may not be good candidates for biofeedback/neurofeedback)?
5. Is the client likely to be motivated to participate in biofeedback training? Demos (2005) indicated that some adolescents are not good candidates because of their belief systems, sleep deprivation, lifestyle habits, criminal behaviors, and so forth.
6. Does this client have a psychotic disorder, mental deficit, age condition (very young or very old), or learning disorder that makes it unlikely that biofeedback will be successful as a treatment option at this time?

None of these contraindications are absolute. Tansey (1990) and Thornton and Carmody (2005) have reported the successful application of neurofeedback to learning disabilities. Similarly, Tulio Scrimali (2000, personal communication) in Sicily has used electrodermal biofeedback in the outpatient care for schizophrenic patients. Nevertheless, the presence of the above factors calls for caution, and in some cases, a more experienced practitioner with substantial experience and knowledge of the patient's disorder should be consulted.

Questions

When encountering side effects, the practitioner may want to answer a number of questions, such as those that follow, in an effort to avoid problems and to provide the best possible services to the clients served. Please add the following to your list of questions if it will help you serve your clients better.

1. What kind of symptoms brought this client to treatment? Are they associated with a *DSM* diagnosis (e.g., an Axis II disorder or a serious mental health problem such as identity dissociative disorder) that I am not competent to treat or that I am precluded from treating because of licensure laws? Should I accept this client into treatment or refer him or her elsewhere, or should I seek consultation before proceeding?
2. What kinds of side effects, if any, is this patient experiencing during and between treatment sessions?
3. Am I competent to deal with these side effects, or does the client need a more experienced or differently trained health care provider?

4. Did I do a good job of identifying these potential side effects and of informing the client about them so that he or she is able to make informed decisions about participating in treatment? If not, what should I do now? Do I need to do additional assessment, diagnosis, and/or consultation before proceeding?
5. Are these side effects similar to the presenting symptoms or are they of a new type for this client? If of a new type, have I selected the appropriate treatment for this client or do I need to reconceptualize the problems (e.g., identify all comorbidities or perform a reassessment)?
6. Are these side effects mild, medium, or severe?
7. Are these side effects likely to be transient or durable and longer lasting?
8. Are these side effects associated with a *DSM* diagnostic category in which clients are likely to become a danger to self or others? How should I assess for that possibility? Is this patient likely to disassociate? Can I deal with that kind of side effect appropriately?
9. Does this client find these side effects unpleasant enough to not want to reexperience them? If so, what should I do? Can I minimize their severity and/or occurrence by making adjustments in treatment?
10. What other things should I consider doing to minimize the likelihood of harm to the client and to maximize the likelihood of positive treatment outcomes?
11. If the client drops out of treatment and has severe problems in coping, am I prepared to do the appropriate type of follow-up and interventions needed to preclude injury to the client and/or others and to prevent abandoning a client in need?

Summary

Stress results in individuals experiencing various physiological, psychological, behavioral, and/or cognitive changes. Sometimes these changes, often called symptoms, are severe enough that the person seeks treatment from a health care provider. Sometimes others refer the person for treatment. A complete and careful individualized assessment and diagnostic process (including diagnosis of all relevant comorbidities) is needed to formulate potential treatment options. Failure to do so can result in the client's receiving a treatment that is inappropriate and one that results in the client's experiencing adverse reactions that are unnecessary. Adverse reactions, called autogenic discharges or negative side effects, are a common part of treatment and treatment-induced change, and these reactions, regardless of what they are called by the practitioner, should be anticipated by the practitioner based on an accurate diagnosis (see the current *DSM*), the practitioner's training and experience,

and the client's presenting problems. The client should be informed of these potentially adverse thoughts, feelings, and physiological sensations so that he or she can decide whether he or she wants to risk the possibility of reexperiencing previously experienced symptoms or even experiencing new symptoms that might accompany treatment.

Sometimes symptoms do seem to get worse before they get better. Practitioners should be competent enough to know when a client needs to be referred elsewhere for treatment, when supervision and/or consultation is needed, when the client needs simultaneous treatment or monitoring by another health care practitioner, what kind of adverse reactions are likely to accompany treatment for a specific client, how to educate the client about those potential adverse reactions so that he or she can make an informed decision about treatment, how to appropriately deal with any and all adverse reactions that are likely to occur, and, when previously unexperienced symptoms occur, to ask questions about correct diagnosis, appropriate treatment options, need for consultation or referral and to take such actions that are in the interests of the client so as to prevent injury and to increase the likelihood of positive treatment outcomes. More research is needed for identifying the frequency and types of side effects associated with different biofeedback and other applied psychophysiological treatments. More research is also needed on identifying and implementing the most effective and efficient ways of dealing with side effects when they occur, so as to minimize pain and suffering for the patient while simultaneously promoting positive treatment outcomes.

References

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Andreassi, J. L. (2000). *Psychophysiology: Human behavior & physiological response* (4th ed.). Mahwah, NJ: Lawrence Erlbaum Associates.
- Cannon, W. B. (1932). *The wisdom of the body*. New York: Norton.
- Demos, J. N. (2005). *Getting started with neurofeedback*. New York: W. W. Norton and Company.
- Hammond, D. C. (2001). Adverse reactions and potential iatrogenic effects in neurofeedback training. *Journal of Neurotherapy*, 4(4), 57–62.
- Ochs, L. (2006). The low energy neurofeedback system (LENS): Theory, background, and introduction. *Journal of Neurotherapy*, 10(2/3), 5–39.
- Othmer, S., Othmer, S. F., & Kaiser, D. A. (1999). EEG biofeedback: An emerging model for its global efficacy. In J. R. Evans & A. Abarbanel (Eds.), *Introduction to quantitative EEG and neurofeedback* (pp. 243–310). San Diego, CA: Academic Press.
- Schultz, J. H., & Luthe, W. (1969). *Autogenic therapy: Volume I, Autogenic methods*. New York: Grune & Stratton.
- Schwartz, M. S., Schwartz, N. M., & Monastera, V. J. (2003). Problems with relaxation and biofeedback-assisted relaxation,

and guidelines for management. In M. S. Schwartz & F. Andrasik (Eds.), *Biofeedback: A practitioner's guide* (3rd ed., pp. 251–264). New York: Guilford Press.

Selye, H. (1974). *Stress without distress*. Philadelphia: Lippincott.

Selye, H. (1976). *The stress of life* (Rev. ed.). New York: McGraw-Hill.

Striefel, S. (2007). Treating stress: Positive aspects of side effects: Part I. *Biofeedback*, 35, 75–79.

Tansey, M. (1990). Righting the rhythms of reason: EEG biofeedback training as a therapeutic modality in a clinical office setting. *Medical Psychotherapy*, 3, 57–68.

Thornton, K. E., & Carmody, D. P. (2005). Electroencephalogram biofeedback for reading disability and traumatic brain injury. *Child and Adolescent Psychiatric Clinics of North America*, 14, 137–162.



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