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POTENTIAL NEGATIVE IMPACT OF PSYCHOTHERAPY OF TRAUMATIZED PEOPLE ON THERAPISTS

Private practice

vicarious trauma
psychotherapy of trauma

Summary

The primary goal of psychotherapy is to help others with the suffering they are experiencing. Naturally, most publications are geared toward ways to help in the best possible, professional way. Relatively little attention is paid to the impact of the helping process on the therapist himself and this can be manifold. It is possible to experience positive personal changes like vicarious resilience or vicarious post-traumatic growth. There are few publications in Polish on the potentially negative effects on the therapist: compassion fatigue; professional burnout; secondary traumatic stress, or vicarious trauma. In this publication, the author discusses the potentially negative consequences of therapy provision for the therapist focusing in particular on vicarious trauma, which can affect many therapists working with traumatized individuals. He outlines the processes in the therapist's mind of confronting his own beliefs about the world and needs for trust, security, independence, respect for others, a sense of power and efficacy, and the search for a frame of reference for experiences — with what his patients experience. The author also discusses the processes occurring in the therapist's brain during therapy in the mirror neuron system, the amygdala body, the autonomic system and the hypothalamic-pituitary-adrenal axis. Awareness of these changes can be a prelude to controlling and limiting their impact on the therapist.

Introduction

Every day, we witness the suffering of others, which we observe on TV, in the park, on the street, and among our loved ones. It affects our minds, emotions, and bodies. For those professionally engaged in assisting others, there is yet another experience in addition to the daily one – the experience of suffering. While helping others, they listen to stories of violence, pain, grief, and despair, hoping that their concern, empathy, and knowledge will alleviate the suffering of others. However, their assistance has specific biological, psychological, and interpersonal consequences for themselves. Through their work, therapists have the opportunity to help others change. They may also experience positive changes themselves, such as vicarious post-traumatic growth and vicarious resilience. In Polish literature, issues related to the negative impact of the helping process

on the helper are rarely addressed. In this article, the author would like to draw attention to the potentially negative consequences of helping for the helper, with a particular focus on vicarious trauma.

Compassion fatigue

Compassion fatigue (CF) is a general term describing the experience of emotional and physical fatigue felt by individuals who empathically help others who are suffering [1]. It was first coined in 1992 [2] as a form of burnout that "affects people in care-related professions." Compassion fatigue is not specific to working with trauma; it can also be experienced by those caring for other populations, such as individuals with mental illnesses. It is defined as a syndrome comprising secondary traumatic stress and occupational burnout [3]. This term needs to be more clear-cut and is used in various ways in the literature. Depending on the conceptualization, compassion fatigue can be described as a phenomenon with a predominant secondary traumatic stress component (triggered by a specific case or distressing event) or more progressively and cumulatively (after exposure to multiple traumas experienced by others). Unlike secondary traumatic stress, which is immediate, compassion fatigue tends to accumulate over time. It is often associated with empathy erosion [4], whereas vicarious trauma is associated with an existing empathic bond. Both conditions share a sense of emotional exhaustion, helplessness, and isolation. Like occupational burnout, compassion fatigue is a response to the work environment and professional role. However, it is unlikely to profoundly change the worldview of the person experiencing it on a deep and personal level [5].

Professional burnout

The term professional burnout (PB) was introduced by Sobel [6] and later expanded upon by Freudenberger, who is credited with writing the first paper on the subject [7]. It is a state of physical, emotional, psychological, and spiritual exhaustion resulting from chronic exposure to (or practice with) sensitive populations or suffering [8]. This condition does not contain or mimic symptoms of PTSD [9] and is not specific to working with clients who have experienced trauma [10]. Burnout does not affect cognitive schemas related to trust, control, intimacy, the need for respect, safety, and intrusive imagery [11]. It most commonly occurs in individuals who choose their profession intending to help others. The critical factor in the development of professional burnout is the performance of work involving service to others, which involves the need to suppress or routinely express compassion and the continuous use of empathy. Professional burnout is a multidimensional construct with three distinct domains:

1. Emotional exhaustion occurs when a practitioner's emotional resources are depleted due to constant demands, expectations, and requirements from clients, supervisors, and organizations [12].

2. Depersonalization (also referred to as cynicism) relates to pessimistic, cynical, or detached reactions toward coworkers or clients and their situations. It includes changes in thinking and feelings about practice that can manifest during burnout.
3. Reduced personal accomplishment is experienced by practitioners who feel ineffective when clients do not respond to help despite efforts to assist them. This domain can also respond to bureaucratic constraints and administrative demands.

Contributing factors can exist at the individual, organizational, or client level (they can also occur in combination) [13]: a) individual factors (conflictual relationships with colleagues, an individualistic coping style, difficulties interacting and understanding clients); b) organizational factors (excessive workload, lack of control or influence over policies and procedures, organizational structure and discipline inequity, limited support from others, and poor training); c) client-related factors, such as passivity and resistance to change.

Secondary traumatic stress

Secondary traumatic stress (STS) refers to behaviors and emotions that arise from knowledge of a traumatizing event experienced by a significant person (or client) and the stress resulting from helping or the desire to help someone affected by trauma [14]. It stems from engaging in an empathetic relationship with someone suffering from a traumatic experience and witnessing their intense or horrifying experiences. STS symptoms can encompass the full range of PTSD symptoms, such as intrusive thoughts, memories, or nightmares related to the client's trauma, insomnia, irritability or anger outbursts, fatigue, concentration difficulties, avoidance of clients and situations related to them, hypersensitivity, or arousal reactions triggered by stimuli reminiscent of the client's trauma. In contrast to vicarious trauma, STS is not specific to healthcare workers, and anyone who has close contact with a person who has experienced trauma can experience it.

What is vicarious trauma?

The term vicarious trauma (VT) refers to the cognitive changes that result from prolonged, empathetic engagement with the issues of individuals who have experienced trauma [15]. Therapists working with trauma survivors are constantly exposed to stories of betrayal, lack of protection, and violation of basic needs – safety, care, trust, control, and respect. The empathetic stance, essential for performing the work, also serves as a channel for transmitting the patient's experience to the therapist. It was defined in 1990 by McCann and Pearlman [16], who posited that direct therapeutic work with trauma survivors could have a transformative impact on the clinician. In 1995, this definition was further refined as "a transformation in the therapist's inner experience that occurs as a result of empathic engagement with the client's traumatic material" [17]. This definition is still considered useful today. Its key components are: 1) empathetic engagement in working with a patient

who has experienced trauma and 2) profound cognitive change in the therapist's internal perspective after prolonged exposure [18].

Like other individuals, therapists construct their own reality and develop personal concepts about it. These structures, as well as cognitive schemas, are disrupted by contact with clients' traumatic reactions. Therapists empathize cognitively to understand the meaning and consequences of traumatic experiences, but they also empathize affectively and genuinely experience the client's pain. Such exposure to the trauma of others challenges the therapist's cognitive structures. It leads to a pervasive, longer-lasting change in their inner experience, distinguishing it from secondary traumatic stress and compassion fatigue. In vicarious trauma, there is a greater emphasis on internal cognitive changes than external behavioral changes, which are more common in secondary traumatic stress. Vicarious trauma gradually emerges over time, mimics other traumatic experiences, and results in a lasting shift in one's perception of the world.

Is vicarious trauma the same as countertransference?

Freud [19] described countertransference as a phenomenon that occurs in the therapist due to the patient's influence on their unconscious feelings, requiring the therapist to recognize and overcome this countertransference within themselves. It is often experienced as brief, intrasessional intrusions of the therapist's anxieties [20]. Freudenberger and Robbins [21] wrote: "[In therapy] old scars and traumas of the therapist are constantly being reopened." Corey [22] defined countertransference as the process of seeing oneself in the client, over-identifying with the client, or gratifying one's needs through the client. This so-called countertransference applied to work with all patients. Herman [23] coined the term "traumatic countertransference," describing the inevitable risk for therapists focused on trauma to "certainly revive any personal traumatic experiences." In this way, the therapist is susceptible to being wounded, and "trauma is contagious."

However, vicarious trauma appears to differ from countertransference in several vital aspects. Firstly, vicarious trauma is a broader concept than countertransference, as it assumes that a significant part of the therapist's cognitive world is changed due to exposure to the client's traumatic material. Secondly, vicarious trauma involves accumulating effects and persists beyond the therapist's professional life. Thirdly, despite similar emotional experiences, countertransference is not explicitly linked to traumatic material but is rather associated with interactions with clients. Fourthly, vicarious trauma pertains to the cumulative effects of coping with a client's trauma, while countertransference is specific to individual clients.

Vicarious trauma – risk factors

Various elements can influence the manifestation of vicarious trauma, but the most frequently cited risk factors include a young age of the therapist or relatively short profes-

sional experience; inadequate education; high levels of cognitive and emotional empathy; unresolved personal traumas from the past; an anxious attachment style; a self-sacrificing interpersonal style; inadequate supervision and lack of support from the work environment; and frequent exposure to trauma.

Vicarious trauma in the therapist's mind

Howarth reviewed the leading themes related to vicarious trauma in the professional literature from 1990 to 2021 [24]. The review provided rich insights into this phenomenon but also revealed overlapping concepts in many instances. Vicarious trauma refers to "ubiquitous and cumulative" changes in one's perception of the world, other people, and oneself due to repeated exposure to various forms of traumatic material [27]. Symptoms are described as a combination of physical, behavioral, and emotional disturbances that alter one's worldview and self-identity [25].

Despite numerous descriptions of vicarious trauma in recent years, the changes in the therapist resulting from working with trauma clients are best described by McCann and Pearlman in their article from 1999 [26]. According to their premise, individuals construct their reality by developing complex cognitive structures used to interpret events. These structures evolve and become increasingly intricate over time and experience. Schemas encompass beliefs, assumptions, and expectations about oneself and the world that enable individuals to make sense of their experiences. Some schemas involve beliefs and assumptions about causality, the reliability of senses, identity, and relationships with the world.

The authors identified eight primary schema changes underlying vicarious trauma:

1. **Trust/dependence.** In their work, therapists are exposed to knowledge about various ways people deceive, betray, and abuse the trust of others (e.g., children). This exposure can disrupt their schemas related to trust, making therapists more suspicious of others, cynical, or untrusting. Such changes may manifest as therapists expecting the worst from people associated with the client's world.
2. **Safety.** Images related to the loss of safety (e.g., threats, harm inflicted) can be particularly destructive if the therapist himself has a strong need for safety. Therapists may strongly identify with what the victims have experienced and fear it themselves (e.g., rape), as well as fear their vulnerability and have an excessive awareness of life's fragility. These fears may not always be experienced directly but can appear as thoughts and images related to personal vulnerability, such as the loss of loved ones.
3. **Power and sense of effectiveness in the world.** Clients who become victims often find themselves in extreme helplessness, powerlessness, or even paralysis. Therapists for whom power and effectiveness are essential may be highly influenced by the powerlessness experienced by clients, leading them to encourage clients to take specific actions rather than helping them understand the meaning of their reactions. Therapists may also employ personal coping mechanisms to enhance their sense of power and safety, such as a therapist working with rape victims enrolling in self-defense classes.

Therapists may fantasize about protecting their loved ones, and these fantasies can become increasingly violent or retaliatory. Therapists may become more dominant in social and professional situations if the need for power is threatened. In another scenario, therapists may experience a heightened awareness that control over unexpected life events is illusory and that everything they have strived for can be destroyed instantly. In such situations, they may experience feelings of helplessness and despair.

4. **Independence.** Individuals experiencing trauma often encounter significant limitations to their independence. For therapists with a strong need for autonomy, identifying with clients who have lost their sense of personal control can be particularly painful.

5. **Respect for others.** Respect is granted to those we perceive as worthy and benevolent. Individuals who have undergone traumatic experiences often report a decreased respect for others and people in general. Therapists may experience bitterness and anger toward other people and the world due to the disconnect between their positive schemas about people and the reality experienced by clients. Therapists may harbor resentment and anger toward others and the world, resulting in a loss of idealism.

6. **Alienation.** Victims of trauma often experience a deep sense of alienation. Similarly, therapists may feel alienated from exposure to horrifying images and cruel reality. This sense of alienation may be compounded by others asking questions like, "How can you listen to such things every day?" Just as victims feel stigmatized, therapists may experience an uncomfortable sense of detachment from their family, friends, or coworkers. Alienation from loved ones can also be exacerbated by the necessity to maintain confidentiality regarding therapeutic material, which, if left unmanaged, can transform into a profound sense of alienation.

7. **A reference point for significant experience.** Establishing a reference point for one's experiences is a fundamental human need. Individuals who have undergone challenging experiences often ask themselves why it happened to them. Similarly, therapists may become preoccupied with understanding why a particular person experienced a traumatic event, leading them to focus on the motives. A subtler change in this schema appears when the therapists' schemas are constantly challenged by patients' experiences, causing disorientation and anxiety.

8. **Changes in the memory system.** Therapists may experience traumatic client content in the form of recurring fragments (without context or meaning) as flashbacks, dreams or intrusive thoughts. These images may be activated by previously neutral stimuli, associated with patients' memories. They may be so vivid and powerful that they may be considered the therapist's own memories and become incorporated into the therapist's memory system. Such experiences are centered around the most important schemas of the therapist. Thus, a therapist for whom safety is important will evoke images linked to threat and personal defenselessness, while another therapist for whom self-esteem is more central may focus on images related to degradation and cruelty. Such experiences create a temporary state of disequilibrium, as schemas adapt or change. Memories (both visual and verbal) cause changes in schemas as they adapt to new realities. Disturbances in the memory system are also associated with strong emotions, e.g., sadness, anxiety

and anger. Therapists may also display denial or emotional numbness when they are unable to process emotions.

Vicarious trauma in the therapist's brain

As they attentively listen to a patient's trauma history, therapists envision how the experience appeared (or appears) to the client and strive to provide a supportive environment that restrains strong emotions [27]. Therefore, it can be assumed that when a therapist is empathetically engaged in a client's traumatic experience, many of the neurobiological processes occurring in the patient's brain are similarly activated in the therapist's brain [28]. Higher neural centers do not always process their functioning.

1. **Mirror neuron system.** Research indicates that the brain region activated by our emotions is also active when we observe another person experiencing the same emotions [29]. Neurons that activate in response to observing others' actions or emotions are termed "mirror neurons." They are activated not only when we assess the actions of others but also when we process others' experiences, sensations, or emotions [30]. Therefore, a good therapist connects to their patients through empathetic resonance—identifying and feeling their fear, anxiety, and sadness. It makes the therapist susceptible to vicarious trauma. It has been discovered that individuals with higher scores in taking others' perspectives had a more robust auditory mirror neuron system [31]. This implies that individuals with greater empathic abilities (a stronger mirror neuron system) may be more susceptible to vicarious trauma.

2. **Amygdala.** It provides information to the hypothalamus, which triggers neuroendocrine and autonomic responses such as increased heart rate, blood pressure, and defensive reactions [32]. This system bypasses thinking and allows rapid, instinctive responses in threatening situations. In a therapeutic context, the lack of cognitive processing in this stress response can lead to unconscious reactions. Moreover, hyperactivity of the amygdala is associated with symptoms such as irritability, anger, and heightened vigilance, which are issues in vicarious trauma.

3. **Autonomic nervous system.** It consists of the sympathetic and parasympathetic systems, which regulate the body's internal state and maintain homeostasis, promoting survival. The amygdala activates the sympathetic system under stress conditions to increase energy production in response to threats. The parasympathetic system inhibits or "down-regulates" the sympathetic system. Optimal system functioning involves smooth oscillation. When a therapist empathetically listens to a patient's trauma, their sympathetic system is activated, causing excessive vigilance. It can also induce a "fight" response (aggression) or "flight" response (fear/avoidance) in the therapist as a response to processing traumatic material. In the "fight" response, the therapist may unconsciously adopt a critical, hostile, or punitive approach toward the patient. In the "flight" response, the therapist may delay their decision-making and avoid challenging issues [33]. The parasympathetic system inhibits emotional and behavioral stress responses by inhibiting the sympathetic system and reducing

metabolic efficiency. It may be responsible for "freezing" or dissociative reactions seen in individuals who have experienced trauma. It may also be associated with the emergence of detachment in a therapist's work, becoming superficial or procedural, which is commonly cited as a symptom of vicarious trauma. When this defense mechanism is repeatedly triggered, it can lead to emotional numbness. The functioning of the autonomic nervous system can cause therapists to be excessively aroused (sympathetic system) on the one hand and overly regulated, even to the point of dissociation (parasympathetic system) on the other. Schore [34] referred to this simultaneous activation of the sympathetic and parasympathetic systems as "riding the gas and the brake simultaneously." The authors speculate that the autonomic nervous system is not adapted to enduring long-term stressors, which may partly explain significant fatigue after working with trauma.

4. **Hippocampus.** This brain structure processes information and explicit memory content, transmitting it to the prefrontal cortex. It compares incoming data with stored experiences. In therapists who have experienced trauma in their own lives, the "priming" process may result in a faster and more intense reaction to a patient's trauma [35]. Increased release of norepinephrine and cortisol impairs cognitive assessment of experiences, disrupting memory storage. Under stress conditions, memories are stored as somatic sensations and visual images [36]. Therapists who have experienced trauma often report not remembering a patient's history or forgetting large portions. Furthermore, the patient's trauma history may "awaken the therapist's memories and the strong emotions arising from them". In research conducted among therapists, almost all reported experiencing visual imagery of their clients' traumatic experiences and felt that these images would remain with them forever [37].

5. **Hypothalamus – pituitary – adrenal axis (HPA).** In response to stress, the hypothalamus releases corticotropin-releasing hormone (CRH), which stimulates the release of beta-endorphin and adrenocorticotropic hormone (ACTH) from the pituitary gland. Beta-endorphin induces analgesia and can reduce physical or emotional pain associated with trauma. This utilization of the opioid system may partially explain the symptoms of avoidance and numbness in vicarious trauma. The adrenal glands, in response to pituitary stimulation, produce cortisol. Under the influence of cortisol, the brain can become sensitized to psychologically threatening stimuli, promoting survival. Over time, through "priming," individuals who have experienced trauma are more prone to intense and rapid responses to threats. The priming mechanism may explain why therapists who have previously experienced trauma are more susceptible to vicarious trauma. Elevated cortisol levels enhance emotional memories, allowing for remembering and avoiding threatening situations. It can also lead to excessive generalization of negative experiences that are not actually threatening. This may contribute to cognitive changes observed in therapists in vicarious trauma. On the other hand, chronic excessive cortisol activation results in negative feedback in the HPA axis and hypocortisolism—dissociative reactions or numbness may occur—keeping the content of experiences out of consciousness. For therapists, this

can be problematic because they are less able to cognitively process raw emotions without conscious access to painful material. Unprocessed emotions also make them more susceptible to developing symptoms such as intrusive thoughts or concerns regarding their clients.

6. **Brain hemispheres.** Proper functioning depends on the horizontal integration of both brain hemispheres with the help of the corpus callosum. In individuals with trauma, this integration is disrupted: either patients experience raw emotions without the benefit of cognitive mediation or a detached, logical state without the benefit of emotional awareness. The therapist listens to the patient and subconsciously registers the patient's affective states and bodily reactions. They experience the intense affects related to these relational patterns through countertransference. If there is consistently a disruption in the relationship between the hemispheres in the patient, it can potentially lead to adverse outcomes in working with trauma.

In summary, regarding the functioning of the therapist's brain during work with a client's trauma, it can be concluded that:

1. Mirror neurons in therapists activate in response to the client's affective states when they empathetically immerse themselves in the trauma history.
2. The amygdala signals the autonomic nervous system to respond with "fight or flight" or "freeze."
3. However, when empathetic connection is maintained, the sympathetic and parasympathetic systems are contradictory.
4. Dysregulation between the patient's right and left brain hemispheres potentially reinforces dysregulation in the therapist, creating disturbing visual memories or inhibiting memory.
5. Elevated cortisol levels can further intensify this emotional reaction.
6. The therapist utilizes their affect for regulation, which develops early in life due to attachment abilities. Depending on the therapist's personal history, this regulation may be more or less effective.
7. To maintain equilibrium, the therapist may employ primary defense mechanisms such as denial and dissociation to cope with emotional overload.
8. Empathy serves as the primary guide for developing vicarious trauma and secondary traumatic stress, posing a risk for all therapists working with trauma.

Conclusions

As discussed above, working with a client's trauma can carry the risk of adverse personal changes for the therapist. Awareness of this risk is essential in implementing appropriate coping strategies, especially prevention and self-care practices. However, a detailed discussion of these strategies goes beyond the scope of this publication. In a fascinating study from 2021 [38], cortisol levels were measured before and after sessions in patients and therapists. After the sessions, patients completed scales assessing the impact of the

session on their well-being. It was found that only the cortisol level of the therapist had a moderating effect on the session outcome. A session was considered successful by the patient only when both the patient's and the therapist's cortisol levels increased, and it was considered unsuccessful when the patient's cortisol increased while the therapist's cortisol decreased. This implies that therapists are inevitably exposed to working under stressful conditions, and ways to maintain it optimally should be sought.

Finally, it is worth mentioning that therapists, through their work with clients' trauma, can also experience its positive effects by acquiring vicarious resilience or experiencing vicarious post-traumatic growth. This change occurs in many dimensions, such as increased awareness of clients' trauma narratives, changes in life goals and perspectives, greater self-awareness and self-care practices, hope inspired by clients, greater recognition of clients' spirituality as a therapeutic resource, increased awareness of power concerning social position, and increased resilience.

These significant changes will be discussed in future publications.

References

1. Figley CR. Treating compassion fatigue. New York: Brunner-Routledge, 2020.
2. Joinson C. Coping with compassion fatigue. Nursing 1992; 22: 116–121.
3. Boscarino A. Compassion fatigue and psychological distress among social workers: A validation study. Am. J. Orthopsychiatry 2006; 76(1): 103–108.
4. Kadambi MA, Ennis L. Reconsidering vicarious trauma: A review of the literature and its' limitations. J. Trauma Pract. 2004; 3(2): 1–21.
5. Isobel S, Thomas M. Vicarious trauma and nursing: An integrative review. Int. J. Ment. Health Nurs. 2022; 31: 247–259.
6. Sobel R. The "old sergeant" syndrome. Psychiatry 1947; 10: 315–321.
7. Freudenberger HJ. Staff burn-out. J. Soc. Iss. 1974; 30: 159–165.
8. Pines A, Aronson E. Career burnout: Causes and cures. New York: Free Press; 1998.
9. Jimenez RR, Andersen S, Song H, Townsend Ch. Vicarious trauma in mental health care providers. J. Interprofessional Educ. Pract. 2021; 24.
10. Sansbury B, Graves K, Scott W. Managing traumatic stress responses among clinicians: Individual and organizational tools for self-care. Trauma 2015; 17: 114 –122.
11. Trippany RL, Kress WVE, Wilcoxon SA. Preventing vicarious trauma: What counselors should know when working with trauma survivors. J. Couns. Dev. 2004; 82: 31–37.
12. Lloyd Ch, Król R, Chenoweth L. Social work, stress and burnout: A review. J. Ment. Health 2009; 11(3): 255–265.
13. Barak MEM, Nissly AL. Antecedents to retention and turnover among child welfare, social work, and other human service employees: What can we learn from the past research? A review and metaanalysis. Soc. Serv. Rev. 2001; 75(4); 625–661.
14. Figley CR. Compassion fatigue: Coping with secondary traumatic stress disorder. Psychol. Press; 1995.

15. Pearlman LA. Self-care for trauma therapists: Ameliorating vicarious traumatization. In: Hundall Stamm B, ed. Secondary traumatic stress: Self-care issues for clinicians, researchers, and educators. Baltimore: Sidram Press; 1999.

16. McCann IL, Pearlman LA. Vicarious traumatization: A framework for understanding the psychological effects of working with victims. J. Traum. Stress 1990; 3: 131–149.

17. Pearlman LA, Saakvitne KW. Trauma and the therapist: Countertransference and vicarious traumatization in psychotherapy with incest survivors. New York, NY: W. W. Norton; 1995.

18. Kennedy S, Booth R. Vicarious trauma in nursing professionals: A concept analysis. Nurs. Forum 2022; 57: 893–897.

19. Freud S. The future prospects of psycho-analytic therapy: Collected papers. London: Hogarth Press; 1910.

20. Harrison RL, Westwood MJ. Preventing vicarious traumatization of mental health therapists: Identifying protective practice. Psychol. Psychother. Theory Res. 2009; 46: 203–219.

21. Freudenberger H, Robbins A. The hazards of being a psychoanalyst. Psychoanal. Rev. 1979; 66(2): 275–296.

22. Corey GF. Theory and practice of counseling psychotherapy. Belmont CA: Brooks Cole; 1991.

23. Herman J. Trauma and recovery. New York: Basic Books; 1992.

24. Howarth A. A systematic literature review: Exploring evolving and emerging themes in vicarious trauma research from 1990 to 2021. Austr. Couns. Res. J. 2021; 15(2): 1–13.

25. Fohring S. The risks and rewards of researching victims of crime. Methodol. Innov. 2020; 13(2): 1–11.

26. McCann L, Pearlman LA. Vicarious traumatization: A framework for understanding the psychological effects of working with victims. In: Horowitz MJ, ed. Essential papers on posttraumatic stress disorder. New York: New York University Press, 1999, pp. 498–517.

27. Applegate JS, Shapiro JR. Cognitive neuroscience, neurobiology and affect regulation: Implications for clinical social work. Clin. Soc. Work J. 2005; 28: 9–21.

28. Rasmussen B, Bliss S. Beneath the surface: An exploration od neurobiological alterations in therapists working with trauma. Smith Coll. Stud. Soc. Work. 2014, 84: 332–349.

29. Corradini A, Antonietti A. Mirror neurons and their function in cognitively understood empathy. Conscious. Cogn. 2013; 22(3): 1152–1161.

30. Buccino G, Amore M. Mirror neurons and the understanding of behavioral symptoms in psychiatric disorders. Curr. Opin. Psychiatry 2008; 21(3): 281–285.

31. Gazzola V, Aziz-Zadeh L, Keysers, C. Empathy and the somatotopic auditory mirror system in humans. Curr. Biol. 2006; 16: 1824–1829.

32. Cozolino L. The neuroscience of psychotherapy: Healing the social brain (2nd ed.). New York, NY: W. W. Norton; 2010.

33. Tyler TA. The limbic model of systemic trauma. J. Soc. Work Pract. 2012; 26(1): 125–138.

34. Schore AN. Affect regulation and the repair of the self. New York, NY: W. W. Norton; 2003.

35. Mead HK, Beauchaine TP, Shannon KE. Neurobiological adaptations to violence across development. Dev. Psychopathol. 2010; 22: 1–22.

36. Miehls D. Neurobiology and clinical social work. In: Brandell JR, ed. Theory and practice in clinical social work (2nd ed.). Thousand Oaks, CA: Sage; 2011.

37. Iliffe G, Steed LG. Exploring the counselor's experience of working with perpetrators and survivors of domestic violence. J. Inter. Viol. 2000, 15: 393–412.

38. Levi E, Fischer S, Fisher H, Admon R, Zilcha-Mano S. Patient and therapist in-session corti-sol as predictor of post-session patient reported affect. Brain Sci. 2021; 11: 1483; https://doi.org/10.3390/brainsci11111483 [retrieved: 04.05.2023].

39. Killian K, Hernandez-Wolfe P, Engstrom D, Gangsei D. Development of the vicarious resilience scale (VRS): A measure of positive effects of working with trauma survivors. Psychol. Trauma 2017; 9(1): 23–31.

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