

Reward Deficiency Syndrome Solution Focused Brief Therapy to Begin Integrating the Sciences of Addiction & Reward Deficiency Syndrome (RDS)

Elizabeth Dale Gilley*

MA psychology, PMC addictions, NorthCentral University, San Diego, CA, USA

***Correspondence to:**

Elizabeth Dale Gilley
MA psychology, PMC addictions
NorthCentral University, San Diego, CA, USA
E-mail: gilley.elizabeth@yahoo.com

Received: July 06, 2019

Accepted: September 26, 2019

Published: September 30, 2019

Citation: Gilley ED. 2019. Reward Deficiency Syndrome Solution Focused Brief Therapy to Begin Integrating the Sciences of Addiction & Reward Deficiency Syndrome (RDS). *J Reward Defic Syndr Addict Sci* 5(1): 1-6.

Copyright: © 2019 Gilley. This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY) (<http://creativecommons.org/licenses/by/4.0/>) which permits commercial use, including reproduction, adaptation, and distribution of the article provided the original author and source are credited.

Published by United Scientific Group

Abstract

Reward Deficiency Syndrome Solution Focused Brief Therapy (RDS-SFBT), provided in both individual and group therapy formats, in the practice of Addiction Recovery Treatment, will help the client understand the importance of the challenge to achieve dopamine homeostasis in the recovery process. RDS-SFBT introduces new Reward Deficiency Syndrome concepts and solutions to the practitioner-client world, helping to bridge the gap between the worlds of research and therapeutic practice [1]. Newly created RDS-SFBT will bring awareness of the advancements of cutting-edge global Reward Deficiency Syndrome research efforts [2], and expands the resource application available to the consumer.

Keywords

Addiction, Reward deficiency syndrome, Solution-focused brief therapy, Anhedonia, Dysphoria, Relapse, Family therapy

Introduction

Scientists all over the world are pushing the limits of the accepted and reaching out in all directions, in search of new perspective in addiction Medicine. In response to new research, new fields are being created, such as the study of the molecular and cellular initiation of relapse, genomic medicine and psychiatric genetics. While many research studies concentrate upon dopaminergic dysfunction [3], it is known that serotonin and glutamine pathway imbalances help fuel addictive behavioral response [4]. Epigenetic research has contributed much understanding to the body's response to neurological challenge, and potential pharmacotherapies are being studied to combat the epigenetic transcription powers of RNA.

In seeking the whole truth, we must reach for higher national and global standards. If our primary concern and motivation is to cure the disease, we must be clear on what the disease actually is. For decades, theorists have debated whether addiction is a choice or a disease [5]. Kevin McCauley [6] claims it is a disease of choice. It is believed that approximately 90% of those who experience substance use Disorder, have what might be considered maladaptive coping response mechanisms, meaning they have developed poor stimulus response behavioral patterns, which can be unlearned. This may not be as easy as inferred, because epigenetic response to the dopamine high jacked brain, is to lower the dopamine set point, which is one of the initiators of Reward Deficiency Syndrome.

Ten percent of those coming into treatment seem to fall through the cracks of addiction medicine. In addition to impulsive, compulsive and addictive behavioral patterns, they may also have several co-occurring mental health disorders, such as

the typical ADHD, Depression, Bipolar, and even potentially, Autism/Asperger, Gilles de la Tourette Syndrome [7] and Parkinson's Disease [8]. Those with the genetic predisposition will have too few functioning dopaminergic 1-4 receptor sites and experience a complexity of dopaminergic dysfunction disorders [9].

"Approximately 50 years of research have led to new understanding and a new phenotype for impulsive, addictive and compulsive behavioral expression, with the successful evidence based concept of Reward Deficiency Syndrome [10] which is linking all addiction under a common rubric [11], and changing the recovery landscape" [12]. The evolution of neurogenetic addiction science has arrived at the point, in which it is understood that Reward Deficiency Syndrome (RDS) is neurogenetic causal influence and addiction is its symptom [13].

"Decades of research has resulted in a vast evidence base in support of RDS, which has inspired research of Reward Deficiency System Solutions (RDSS)" [13]. It is hoped that the addiction recovery treatment industry will continue to evolve as well, align with cutting edge neurogenetic addiction science, and embrace RDS theory and RDSS. Humanity is indebted to Dr. Kenneth Blum and his many research colleagues and associates for changing the recovery landscape [14] providing enlarged perspective [15], and current RDSS focused application.

In former publication, *Integrating the Science of Addiction and the Science of Wellbeing* [16], the author has evaluated the problems facing the Addiction Treatment Industry; integrated and synthesized new theory in *The Evolution of Addiction Treatment: The Disease is RDS and Addiction is its symptom* [13]; as well as relayed extended RDS causal influence theory to co-occurring mental illnesses, which are linked by dopaminergic dysfunction, in *The New Science of Attention Deficit Hyperactivity Disorder: News from the cutting edge of research science* [17]. These dopaminergic dysfunction diseases also include: Obsessive Compulsive Disorder (OCD), Impulse Control Disorders, Behavioral Addictions, Depression [18], the Autism Spectrum, Gilles de la Tourette Syndrome [7], and Parkinson's Disease [19].

The author contributed *A proposed treatment plan model for Reward Deficiency Syndrome: To help in restructuring the Addiction Recovery Industry* [12] which provides the basis for the proposed RDS adapted Solution Focused Brief Therapy. Research imperative and moral mandate demands that the system also adapt to align itself with new science, the neuroscience of addiction [2]. RDS theory needs to become integrated within the very foundation of the addiction recovery industry and offered in psycho-educational material for counselor-therapist, client, family members and future predisposed generations of Reward Deficiency Syndrome sufferers.

Discussion of Reward Deficiency System Solutions

In addition to suffering dopaminergic dysfunction and/or deficiency, the experiential phenomena or responsive

conditions of Anhedonia and Dysphoria, further contribute to the complexity of the disease, and should demand our utmost attention, in order to stop the cycle from continuous repetition. It is the suffering individuals who have the lowest positive response benefit from traditional treatment who need to be genetically screened for RDS, along with their family members, who will generally have some variation of the dopaminergic dysfunction [20].

Reward Deficiency System Solutions include the patented Genetic Addiction Risk Score screening test, known as GARS, which can identify polymorphic gene variance which predisposes individuals to RDS and even subtype their addictive behavioral expressions [21]. Instead of just screening for multiple Substance Use Disorders (SUD) and Co-occurring Mental Health Disorders (COD), the industry needs to also screen for RDS, and call it what it is, **the disease**, thus redirecting the addiction recovery industry's course to treat the disease, RDS, not just the symptoms, Addiction and many dopamine dysfunction co-occurring mental health disorders.

RDSS include methods for achieving dopamine homeostasis [22]. RDSS also offers viable application for rejuvenating a brain damaged by toxicity, in neuro-nutrient supplements [23] which provide the amino acid building blocks for proper brain function, and pro-dopamine regulator therapy [24] to combat SUD. After identifying these individuals, and their RDS phenotype, special RDS and RDSS psychoeducation can be provided, as well as tailored individual treatment recovery plans for Reward Deficiency Syndrome [12], to help achieve dopamine homeostasis, within the typical traditional "Treatment as Usual" (TAU), 12 step oriented treatment facility program [25].

Discussion of RDS Solution-Focused Brief Therapy

For addressing continuity of treatment and stage focus needs, Reward Deficiency Syndrome and Reward Deficiency System Solutions can be provided in psycho-education and Solutions Focused Brief Therapy, in a flexible integrative eclectic format, including technique from Rational Emotive Behavior Therapy (REBT), Reality Theory/Choice Therapy (RT/CT), and Motivational Interviewing (MI) to help strengthen client commitment and recovery resolve. RDS-SFBT is appropriate for all phases along the new life-long treatment continuum for individuals and their family members [26].

RDS adapted SFBT will inform clients of new dopamine homeostasis solution oriented applications and help to motivate them to create their own plan for recovery and wellbeing, implementing RDSS strategies for natural dopamine homeostasis [27], as well as neuro-nutrient brain regeneration therapy. Drawing upon their personal strengths to manage the challenges, limitations and symptomatology of RDS/Addiction phenomena, clients are encouraged to take responsibility for developing personalized recovery plans. Clients are motivated to increase solution focused behaviors, such as exercise therapy

[28], Transcranial Magnetic Stimulation (TMS) [29], and the taking of nutritional supplements designed to repair, restore and regenerate the addiction depleted, RDS challenged brain [23].

Achieving Dopamine Homeostasis [30], combating Anhedonia [31], Dysphoria and Dopamine deficiency are key concepts. RDS adapted SFBT can provide the additional tools of Anhedonia and Dysphoria Likert Scales [32] to give insight, and increased awareness of the RDS issues which contribute increased risk of relapse of addictive behavioral expression. Utilizing Anhedonia and Dysphoria measurement Likert Scales can help one stay aware of periods of increasing risk for relapse [33]. In addition to the inability to experience pleasure, expanded RDS Anhedonia Likert Scales [34] may include correlational categories such the inability to experience ease, comfort, and the inability to mitigate pain [35]. Dysphoria refers to an uncharacteristic proclivity for volatility, inability to tolerate the experience of frustration and sudden extreme rage.

The basic tenets or key concepts of SFBT, as outlined by the Research Committee of the Solution Focused Brief Therapy Association, in their Solution Focused Therapy Treatment Manual, [36, 37] include focus on the present, rather the past. The RDS-SFBT is focus upon increasing solution building behaviors rather than problem solving. It also helps one identify exceptions to the problem, or times when the problem does not present. Counselors are encouraged to ask the magic miracle question – What would be different if you awakened today and the problem did not exist?

For an individual suffering from Reward Deficiency Syndrome, and it's many addictive expressions, the client may be asked to recall memory of days in which he or she was not plagued by craving, anhedonia [38] and/or dysphoria, or in other words, those times in which the disease did not preoccupy time and attention. Every addict has experience days of reprieve, in which the disease was not actively flaring up, when he or she was free to go about the process of daily life, achieving goals, making progress, and living in the luxury of the moment's temporary bliss.

With positive benefit being the motivation, the client is encouraged to think about ways in which he or she can maintain dopamine homeostasis so that the aggravates of Anhedonia and Dysphoria, do not exasperate an already turbulent physiological and emotional climate. The stress of craving, Anhedonia [39] and Dysphoria increase the likelihood of relapse, giving in to the disease to quell the beast, and/or choosing a perceived short-term gain over long term deterrent. It is estimated that craving is positively correlational to the intensity of Anhedonia and Dysphoria [40].

RDSS psycho-education informs the clients of many ways to boost dopamine, through various activities such as listening to uplifting music, singing, dance, swimming, exercise [28], massage, meditation [41], visualization and many other integrative mind body healing applications such as yoga, tai chi, gi-gong, and acupuncture, etc. [42]. Integrating SFBT, REBT, and RT therapies can empower the client to take charge of their own recovery, developing a plan of action, encouraging

them to continually increase behaviors which work [43] and reexamine those which don't and need to be pruned.

These solution-oriented client centered therapies place the responsibility for the quality of their lives in the hands of the client [44]. The author of this manuscript has created the following chart, as a quick reference for the comparison and contrast of theories and techniques, discussed in more detail by Corey [45]. See Table 1.

SFBT has already been adapted in several other contexts and used as the subject matter of research study [46]. For example, SFBT has been studied in case study for Alcohol Use Disorder (AUD) and in randomized controlled trial study of Substance Use Disorder (SUD) with positive results [47-49]. SFBT has been adapted for children with psychiatric illness with successful results [50]. The effectiveness of SFBT for children and families has undergone systematic and critical evaluation for the 20-year period between 1990-2010, in the UK and was found of particular value for early intervention for children in relation to internalizing and externalizing behavior problems [51]. However, a review of this review thought the benefits were overstated [52].

An eclectic method, integrating Solution-Focused Brief Therapy, Rational Emotive Behavior Therapy [53-54], Choice Theory/Reality Therapy and Motivational Interviewing [55-57] can be a powerful tool for therapists in helping clients in individual and group therapy achieve their desired results. These person-centered positive solutions and action-oriented modalities empower individuals to manage their handicaps and strive to thrive. A flexible integrative approach can be utilized to increase motivation [58] and facilitate a positive self-concept of competence for increasing solution-oriented behavior. RDS-SFBT combined Reality Therapy and Rational Emotive Therapy, can be a power tool for the addiction recovery industry to begin including RDS theory and its solutions, in therapeutic process.

Conclusion

Instead of waiting the typical one hundred years or so, for scientific advancements to trickle down into public awareness, I encourage the addiction recovery industry to treat neurogenetic causal influence, not just the phenomena of addiction symptoms. Neurological dysfunction must be treated with neurological solutions [59]. Psycho-education of Reward Deficiency Syndrome (RDS) and Reward Deficiency System Solutions (RDSS) [12, 60] should be made available to the addiction-recovery treatment industry, to practitioners, counselors, therapists for continuing educational units (CEU), to facilitate the delivery and integration of new perspective and new solutions [61, 62].

Those treatment center enterprises which are expanding treatment response to include RDS, neuro-psychology, and brain plasticity therapies [63] will be better equipped to meet new demand, as these concepts of enlarged perspective filter through the industry and public awareness. We as an industry are still a long way off, from crossing the finish line, of stopping

Table 1: Comparison/ contrast chart for solutions-focused brief therapy, rational emotive behavior therapy and choice theory/reality therapy.

SFBT	REBT	CT/RT
<p>Goals</p> <p>Facilitate a shift in individual and group focus from problems to solutions, encourage change talk and attitude of taking responsibility for outcome. Identifying personal strengths to use in self determined plans to change.</p>	<p>Goals</p> <p>Help group members achieve unconditional acceptance of self and others. Promote tolerance of self, others and life's struggle.</p>	<p>Goals</p> <p>Help group members become more realistic in evaluating their behavior, and their expectations of change by following their plan of action for change.</p>
<p>Leader's role/functions</p> <p>Creates an atmosphere and opportunity for members to see themselves as competent and capable through their expression of personal perspective, life experience and their personal strengths and resources. Helps members evaluate where they are now and determine where they want to be. Encourages and instills hope, by highlighting previous success and reminding member of their strengths.</p>	<p>Leader's role/functions</p> <p>Helps members see through self-delusion, illogical thinking and self-defeating behaviors, and attitudes about self. Helps members change illogical, erroneous and self-defeating patterns, by teaching new patterns of thinking and behaving which will help bring about change.</p>	<p>Leader's role/functions</p> <p>Teaches choice therapy. Helps member evaluate their choices and behaviors which have created the present. Helps members develop a plan of action for creating change. Encourages better choices.</p>
<p>Degrees of structuring/division of responsibilities</p> <p>Leader keeps the group solution focused rather than problem focused. Members report what is working, Leader encourages increase in solution focused behaviors.</p>	<p>Degrees of structuring/division of responsibilities</p> <p>Leader may use cognitive techniques to help educate members, help them realize faulty beliefs, and instructs the use of positive affirmative action coping statements. Behavioral methods may include skills training, role playing and behavior response rehearsal.</p>	<p>Degrees of structuring/division of responsibilities</p> <p>Leader uses the WDEP model: W – what do you want? D – what are you doing? E – Evaluation P – Plan for change</p>
<p>Strengths of this therapy in regard to multicultural group members</p> <p>This method deals with behavior rather than feelings and appeals to clients who want a practical way to make life better. This method helps empower individuals to take responsibility for creating change.</p>	<p>Strengths of this therapy in regard to multicultural group members</p> <p>This method helps members evaluate the appropriateness of adopted values and beliefs from the past, as they relate to the present. Helps member let go of mental health stigma, and embrace new healthy self-concepts based upon new beliefs and values which serve them in the present moment.</p>	<p>Strengths of this therapy in regard to multicultural group members</p> <p>Helps clients from other cultures adapt to the dominant culture in their society. Helps them find balance between their ethnicity and the norms and mores of others.</p>
<p>Liabilities of this method in multicultural context</p> <p>Clients may object to the therapist's role of not-knowing while deferring to the client's inner knowing, wanting more definitive solution and direction, from their expertise.</p>	<p>Liabilities of this method in multicultural context</p> <p>Leaders must fully understand the client's culture and tradition before insinuating that their beliefs may be faulty or non-serving of their interests in the present situation.</p>	<p>Liabilities of this method in multicultural context</p> <p>Many clients may wish to focus upon changing external conditions rather than internal conditions and personal response to stimulus.</p>

the generational cycle of addiction, or Reward Deficiency Syndrome, as it is more accurately about to be known.

It is my hope that SFBT can be adapted by Family System Therapy as a psychoeducational means to relay new perspective of RDS theory and RDS solutions in relation to SUD and dopaminergic dysfunction related mental illness. It is also my hope that addiction recovery counselors and therapists will use these tools, to give more awareness and understanding of enlarged perspective, to the client, so that they can more efficiently and more effectively, take charge of managing their own pathology and strive to thrive.

References

- CASA Columbia. 2012. Addiction medicine: closing the gap between science and practice. Columbia University Press, USA.
- Blum K, Badgaiyan R. 2015. Reward deficiency syndrome (RDS): Entering the genomic and neuroscience of addiction era. *J Reward Defic Syndr* 1(1): 1-2. <https://doi.org/10.17756/jrds.2015-e001>
- Meinzer MC, Pettit JW, Leventhal AM, Hill RM. 2012. Explaining the covariance between attention-deficit hyperactivity disorder symptoms and depressive symptoms: the role of hedonic responsivity. *J Clin Psychol* 68(10): 1111-1121. <https://doi.org/10.1002/jclp.21884>
- Kalivas PW, Lalumiere RT, Knackstedt L, Shen H. 2009. Glutamate transmission in addiction. *Neuropharmacology* 56(Suppl 1): 169-173. <https://doi.org/10.1016/j.neuropharm.2008.07.011>
- Volkow ND. 2014. Harnessing the power of science to inform substance abuse and addiction policy and practice. National institute on drug abuse: Advancing addiction science. Testimony to congress.
- McCauley K. 2009. Pleasure Unwoven. Castle Craig Hospital.
- Wright A, Rickards H, Cavanna AE. 2012. Impulse-control disorders in gilles de la tourette syndrome. *J Neuropsychiatry Clin Neurosci* 24(1): 16-27. <https://doi.org/10.1176/appi.neuropsych.10010013>

8. Modestino EJ, Blum K, Oscar-Berman M, Gold MS, Duane DD, et al. 2015. Reward deficiency syndrome: attentional/arousal subtypes, limitations of current diagnostic nosology, and future research. *J Reward Defic Syndr* 1(1): 6-9. <https://doi.org/10.17756/jrds.2015-002>
9. Modestino EJ, Amenechi C, Reinhofer A, O'Toole P. 2017. Side-onset of Parkinson's disease in relation to neuropsychological measures. *Brain Behav* 7(1): e00590. <https://doi.org/10.1002/brb3.590>
10. Blum K, Braverman ER, Holder JM, Lubar JF, Monastr VJ, et al. 2000. Reward deficiency syndrome: a biogenetic model for the diagnosis and treatment of impulsive, addictive and compulsive behaviors. *J Psychoactive Drugs* 32(Suppl: i-iv): 1-112. <https://doi.org/10.1080/02791072.2000.10736099>
11. Blum K, Febo M, McLaughlin T, Cronjé FJ, Han D, et al. 2014. Hatching the behavioral addiction egg: reward deficiency solution system (RDSS)TM as a function of dopaminergic neurogenetics and brain functional connectivity linking all addictions under a common rubric. *J Behav Addict* 3(3): 149-156. <https://doi.org/10.1556/JBA.3.2014.019>
12. Gilley ED. 2018. A proposed treatment plan model for reward deficiency syndrome: to help in restructuring the addiction recovery industry. *European Journal of Biomedical and Pharmaceutical Sciences* 5(11): 84-90.
13. Gilley ED. 2018. The evolution of addiction treatment: the disease is RDS and addiction is its symptom. *European Journal of Biomedical and Pharmaceutical Sciences* 5(1): 161-166.
14. Blum K, Febo M, Badgaiyan RD, Demetrovics Z, Simpatico T, et al. 2017. Common neurogenetic diagnosis and meso-limbic manipulation of hypodopaminergic function in reward deficiency syndrome (RDS): Changing the recovery landscape. *Curr Neuropharmacol* 15(1): 184-194. <https://doi.org/10.2174/1570159X13666160512150918>
15. Baron D, Blum K, Chen A, Gold M, Badgaiyan RD. 2018. Conceptualizing addiction from an osteopathic perspective: dopamine homeostasis. *J Am Osteopath Assoc* 118(2): 115-118. <https://doi.org/10.7556/jaoa.2018.026>
16. Gilley ED. 2017. Integrating the science of addiction and the science of wellbeing. *J Alcohol Drug Depend* 5(4): 275-281. <https://doi.org/10.4172/2329-6488.1000275>
17. Gilley ED. 2018. The new science of attention deficit hyperactivity disorder: news from the cutting edge of research science. *J Psychiatry Psychiatric Disord* 2(3): 71-76. <https://doi.org/10.26502/jppd.2572-519X0043>
18. Hsiao MC, Lin KJ, Liu CY, Schatz DB. 2013. The interaction between dopamine transporter function, gender differences, and possible laterality in depression. *Psychiatry Res* 211(1): 72-77. <https://doi.org/10.1016/j.psychres.2012.06.004>
19. Modestino EJ, Reinhofer A, Blum K, Amenechi C, O'Toole P. 2018. Hoehn and Yahr staging of Parkinson's disease in relation to neuropsychological measures. *Front Biosci (Landmark Ed)* 23: 1370-1379. <https://doi.org/10.2741/4649>
20. Levey DF, Le-Niculescu H, Frank J, Ayalew M, Jain N, et al. 2014. Genetic risk prediction and neurobiological understanding of alcoholism. *Transl Psychiatry* 4: e391. <https://doi.org/10.1038/tp.2014.29>
21. Blum K, Oscar-Berman M, Demetrovics Z, Barh D, Gold MS. 2014. Genetic Addiction Risk Score (GARS): molecular neurogenetic evidence for predisposition to reward deficiency syndrome (RDS). *Mol Neurobiol* 50(3): 765-796. <https://doi.org/10.1007/s12035-014-8726-5>
22. Febo M, Blum K, Badgaiyan RD, Baron D, Thanos PK, et al. 2017. Dopamine homeostasis: brain functional connectivity in reward deficiency syndrome. *Front Biosci (Landmark Ed)* 22: 669-691. <https://doi.org/10.2741/4509>
23. Blum K, Downs BW, Dushaj K, Li M, Braverman ER, et al. 2016. The benefits of customized DNA directed nutrition to balance the brain reward circuitry and reduce addictive behaviors. *Precis Med (Bangalore)* 1(1):18-33.
24. Blum K, Madigan MA, Fried L, Braverman ER, Giordano J, et al. 2017. Coupling Genetic Addiction Risk Score (GARS) and pro dopamine regulation (KB220) to combat substance use disorder (SUD). *Glob J Addict Rehabil Med* 1(2): pii: 555556. <https://doi.org/10.19080/GJARM.2017.01.555556>
25. Blum K, Haberstick B, Smolen A, Han D, Oscar-Berman M, et al. 2015. Quantification of addiction risk utilizing the genetic addiction risk score (GARS) in multiple treatment centers in the United States: Prediction of addiction severity index- alcohol-risk score, family history and illicit drug abuse. (In press).
26. Blum K, Febo M, Smith DE, Roy AK 3rd, Demetrovics Z, et al. 2015. Neurogenetic and epigenetic correlates of adolescent predisposition to and risk for addictive behaviors as a function of prefrontal cortex dysregulation. *J Child Adolesc Psychopharmacol* 25(4): 286-292. <https://doi.org/10.1089/cap.2014.0146>
27. Leventhal AM, Chasson GS, Tapia E, Miller EK, Pettit JW. 2006. Measuring hedonic capacity in depression: a psychometric analysis of three anhedonia scales. *J Clin Psychol* 62(12): 1545-1558. <https://doi.org/10.1002/jclp.20327>
28. Archer T, Badgaiyan RD, Blum K. 2017. Physical exercise interventions for drug addictive disorders. *J Reward Defic Syndr Addict Sci* 3(1): 17-20. <https://doi.org/10.17756/jrdsas.2017-036>
29. Herrold AA, Kletzel SL, Harton BC, Chambers RA, Jordan N, et al. 2014. Transcranial magnetic stimulation: potential treatment for co-occurring alcohol, traumatic brain injury and posttraumatic stress disorders. *Neural Regen Res* 9(19): 1712-1730. <https://doi.org/10.4103/1673-5374.143408>
30. Blum K, Thanos PK, Wang GJ, Febo M, Demetrovics Z, et al. 2018. The food and drug addiction epidemic: targeting dopamine homeostasis. *Curr Pharm Des* 23(39): 6050-6061. <https://doi.org/10.2174/1381612823666170823101713>
31. Gold MS, Blum K, Febo M, Baron D, Modestino EJ, et al. 2018. Molecular role of dopamine in anhedonia linked to reward deficiency syndrome (RDS) and anti-reward systems. *Front Biosci (Schol Ed)* 10(2): 309-325.
32. Raubenheimer J. 2004. An item selection procedure to maximize scale reliability and validity. *SA Journal of Industrial Psychology* 30(4): 59-64. <https://doi.org/10.4102/sajip.v30i4.168>
33. Leventhal AM, Unger JB, Audrain-McGovern J, Sussman S, Volk HE, et al. 2015. Measuring anhedonia in adolescents: a psychometric analysis. *J Pers Assess* 97(5): 506-514. <https://doi.org/10.1080/00223891.2015.1029072>
34. Rømer Thomsen K, Whybrow PC, Kringelbach ML. 2015. Reconceptualizing anhedonia: novel perspectives on balancing the pleasure networks in the human brain. *Front Behav Neurosci* 9: 49. <https://doi.org/10.3389/fnbeh.2015.00049>
35. Rizvi SJ, Pizzagalli DA, Sproule BA, Kennedy SH. 2016. Assessing anhedonia in depression: potentials and pitfalls. *Neurosci Biobehav Rev* 65: 21-35. <https://doi.org/10.1016/j.neubiorev.2016.03.004>
36. Bavelas J, De Jong P, Franklin C, Froerer A, Gingerich W, et al. 2013. Solution-focused therapy treatment manual for working with individuals: solution focused brief therapy association, 2nd edition. New York, NY, USA.
37. Trepper T, McCollum E, Jong DP, Korman H, Gingerich W, et al. 1999. Solution focused therapy treatment manual for working with individuals. In: Kim JS (ed) The solution focused brief therapy association. SAGE Publications, California, USA, pp 14-31. <https://doi.org/10.4135/9781483352930.n2>
38. Llerena K, Park SG, Couture SM, Blanchard JJ. 2012. Social anhedonia and affiliation: examining behavior and subjective reactions within a social interaction. *Psychiatry Res* 200(2-3): 679-686. <https://doi.org/10.1016/j.psychres.2012.07.050>

39. Leventhal AM, Brightman M, Ameringer KJ, Greenberg J, Mickens L, et al. 2010. Anhedonia associated with stimulant use and dependence in a population-based sample of American adults. *Exp Clin Psychopharmacol* 18(6): 562-569. <https://doi.org/10.1037/a0021964>
40. Pizzagalli DA, Jahn AL, O'Shea JP. 2005. Toward an objective characterization of an anhedonic phenotype: a signal-detection approach. *Biol Psychiatry* 57(4): 319-327. <https://doi.org/10.1016/j.biopsych.2004.11.026>
41. Marchand WR. 2013. Mindfulness meditation practices as adjunctive treatments for psychiatric disorders. *Psychiatr Clin North Am* 36(1): 141-152. <https://doi.org/10.1016/j.psc.2013.01.002>
42. Witkiewitz K, Bowen S, Harrop EN, Douglas H, Enkema M, et al. 2014. Mindfulness-based treatment to prevent addictive behavior relapse: theoretical models and hypothesized mechanisms of change. *Subst Use Misuse* 49(5): 513-524. <https://doi.org/10.3109/10826084.2014.891845>
43. Stige SH, Binder PE, Veseth M. 2019. The role of therapy in personal recovery – Trauma clients' use of resources to continue positive processes following group therapy. *Qualitative Social Work* 18(1): 24-36. <https://doi.org/10.1177/1473325017699264>
44. Gingerich WJ, Kim JS, Geert JJ, Stams JM, Macdonald AJ. 2012. Solution focused brief therapy outcome research. In: Franklin C, Trepper TS, McCollum EE, Gingerich WJ (eds) *Solution-focused brief therapy: A handbook of evidence based practice*. Oxford University Press, UK, pp 95-111. <https://doi.org/10.1093/acprof:oso/9780195385724.003.0043>
45. Corey G. 2016. *Theory and practice of group counseling*. Cengage. pp 452-262.
46. Franklin C, Zhang A, Froerer A, Johnson S. 2016. Solution focused brief therapy: a systematic review and meta-summary of process research. *J Marital Fam Ther* 43(1): 16-30. <https://doi.org/10.1111/jmft.12193>
47. Suitt KG, Geraldo P, Estay M, Franklin C. 2019. Solution-focused brief therapy for individuals with alcohol use disorders in Chile. *Research on Social Work Practice* 29(1): 19-35. <https://doi.org/10.1177/1049731517740958>
48. Kim JS, Brook J, Akin BA. 2018. Solution-Focused brief therapy with substance-using individuals: a randomized controlled trial study. *Research on Social Work Practice* 28(4): 452-462. <https://doi.org/10.1177/1049731516650517>
49. Spilsbury G. 2012. Solution-focused brief therapy for depression and alcohol dependence: a case study. *Clinical Case Studies* 11(4): 263-275. <https://doi.org/10.1177/1534650112450506>
50. Reissner V, Jost D, Krahn U, Knollmann M, Weschenfelder AK, et al. 2015. The treatment of school avoidance in children and adolescents with psychiatric illness. *Dtsch Arztebl Int* 112(39): 655-662. <https://doi.org/10.3238/arztebl.2015.0655>
51. Bond C, Woods K, Humphrey N, Symes W, Green L. 2013. Practitioner review: the effectiveness of solution focused brief therapy with children and families: a systematic and critical evaluation of the literature from 1990-2010. *J Child Psychol Psychiatry* 54(7): 707-723. <https://doi.org/10.1111/jcpp.12058>
52. Gingerich WJ, Peterson LT. 2013. Effectiveness of solution-focused brief therapy: a systematic qualitative review of controlled outcome studies. *Research on Social Work Practice* 23(3): 266-283. <https://doi.org/10.1177/1049731512470859>
53. Brennan M, Emmerling M, Whelton W. 2015. Emotion-focused group therapy: addressing self-criticism in the treatment of eating disorders. *Couns Psychother Res* 15(1): 67-75. <https://doi.org/10.1080/14733145.2014.914549>
54. Gonzalez J, Nelson R, Gutkin T, Saunders A, Galloway A, et al. 2004. Rational emotive therapy with children and adolescents: a meta-analysis. *Journal of Emotional and Behavioral Disorders* 12(4): 222-235. <https://doi.org/10.1177/10634266040120040301>
55. Frost H, Campbell P, Maxwell M, O'Carroll R, Dombrowski S, et al. 2018. Effectiveness of motivational interviewing on adult behavior change in health and social care settings: a systematic review of reviews. *Plos One* 13(10): e0204890. <https://doi.org/10.1371/journal.pone.0204890>
56. Csillik AS. 2013. Understanding motivational interviewing effectiveness: contributions from rogers' client-centered approach. *The Humanistic Psychologist* 41(4): 350-363. <https://doi.org/10.1080/08873267.2013.779906>
57. McCambridge J, Strang J. 2004. The efficacy of single-session motivational interviewing in reducing drug consumption and perceptions of drug-related risk and harm among young people: results from a multi-site cluster randomized trial. *Addiction* 99(1): 39-52. <https://doi.org/10.1111/j.1360-0443.2004.00564.x>
58. Miller WR, Zweben A, DiClemente CC, Rychtarik RG. 1999. *Motivational enhancement therapy manual: a clinical research guide for therapists treating individuals with alcohol abuse and dependence*. In: Mattson M (ed) *Project match monograph series*. Department of health and human services, Public health service, National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism, MD, USA.
59. Miller D, Miller M, Blum K, Badgaiyan R, Febo M. 2015. Addiction treatment in America: after money or aftercare? *J Reward Defic Syndr* 1(3): 87-94. <https://doi.org/10.17756/jrds.2015-015>
60. Febo M, Blum K, Badgaiyan RD, Perez PD, Colon-Perez LM, et al. 2017. Enhanced functional connectivity and volume between cognitive and reward centers of naïve rodent brain produced by pro-dopaminergic agent KB220Z. *PLoS One* 12(4): e0174774. <https://doi.org/10.1371/journal.pone.0174774>
61. Cook S, Schwartz A, Kaslow N. 2017. Evidence-based psychotherapy: advantages and challenges. *Neurotherapeutics* 14(3): 537-545. <https://doi.org/10.1007/s13311-017-0549-4>
62. Ducci F, Goldman D. 2014. The genetic basis of addictive disorders. *Psychiatr Clin North Am* 35(2): 495-519. <https://doi.org/10.1016/j.psc.2012.03.010>
63. Blum K, Febo M, Badgaiyan RD, Braverman ER, Dushaj K, et al. 2016. Neuronutrient amino-acid therapy protects against reward deficiency syndrome: dopaminergic key to homeostasis and neuroplasticity. *Curr Pharm Des* 22(38): 5837-5854. <https://doi.org/10.2174/1381612822666160719111346>