NEC NUTRIMENTUM ET CURAE

Nutr Cur 2024; 03(Special 1): e149 DOI: 10.57625/nec.2024.56

Treatment of AUD (Alcohol Use Disorder): the role of psychosocial approaches considering neuroplasticity and trauma aspects

Ina Maria Hinnenthal[1], Christian Chiamulera[2], Fabio Lugoboni[3], Roger Schmidt[4], Elisa Sgualdini[5], Mauro Cibin[5]

[1]S.C. SerD, ASL3, Genova, Italy

[2]Farmacologia, Dipartimento Diagnostica e Sanità Pubblica, Università degli Studi, Verona, Italy

[3]Medicina delle Dipendenze, Azienda Ospedaliera Universitaria Integrata, Verona, Italy

[4]LurijaInstitut, Universität Konstanz, D; Klinik für Psychosomatik und Konsiliarpsychiatrie, Kantonsspital, St. Gallen, CH

[5]Centro Soranzo, Comunità Terapeutica, Venezia, Tessera, Italy

Corresponding Author: Ina Maria Hinnenthal, MD, Ph.D; e-mail: inamaria.hinnenthal@asl3.liguria.it; ina.hinnenthal@gmail.com

ABSTRACT

AUD can be treated in different settings, such as self-help groups, public health care ambulatories for addiction and therapeutic communities. Alcohol addiction must be considered a dysfunctional answer to an underlying emotional dysfunction or disorder. Psychosocial approaches must be personalized considering the diagnosis, psychosocial factors, level of resilience, neuroplastic aspects and trauma/negative life events in biography. Clinical aspects are enlightened, as well as the historical background of psychosocial approaches in Italy.

KEYWORDS

AUD

PSYCHOSOCIAL APPROACHES

NEUROPLASTICITY

THERAPEUTIC COMMUNITY

ADOLESCENCE

TRAUMA

INTRODUCTION

Alcohol detoxification is relatively simple if followed by correct medical approaches. Sobriety and abstinence are long life processes, and relapses might be frequent during treatment. The underlying physical, social, and/or mental disorders must be diagnosed and well-understood before coming to an individualized and comprehensive therapeutic plan.

CLINICAL BACKGROUND

Cloninger et al[1-3] classified alcoholism into two types as follows.

Type I alcoholism affects both men and women; it requires the presence of a genetic as well as an environmental predisposition, commences later in life after years of heavy drinking, and can take on either a mild or severe form. Anyhow, this form of alcoholism shows a better prognostic evolution, and it is easier to cure.

Type II alcoholism, in contrast, affects mainly sons of male alcoholics, is influenced only weakly by (actual, note of the authors) environment factors, often begins

This work is licensed under a Creative Common Attribution-NonCommercial-ShareAlike 4.0 International License

during early adolescence or early adulthood, is characterized by moderate severity, and is usually associated with criminal behavior. Additional studies have demonstrated that type I and type II alcoholics also differ in characteristic personality traits (harm avoidance and novelty seeking) as well as certain neurophysiological markers. It appears more difficult to cure and to maintain a sober lifestyle even after treatment.

Despite frequent atypical, case-specific situations, this classification is still useful for clinical decision-making based on the personalized specific necessities of the single patient. It is important to consider that the types of alcoholism are highly predictive of the correlated different prognostic evolution, more important than any other prognostic factor.

Craving is associated in type I alcoholism with hope on (emotional, note of the author) pain relief, in type II alcoholism with "seeking"/"wanting" of mainly euphoric sensations.

In a certain way, any addiction, as well as alcoholism, can be considered an emotional problem. The underlying emotional system is somehow disrupted, and the consumption of alcohol and/or substances is an attempt to give a therapeutic answer to the "wrong" emotions. For type I alcoholism, this might be a sort of chronic emotional numbing with underlying pain due to single traumatic events at an earlier age. But here, the basic emotional system is only in distress and basically not damaged. So, good therapeutic intervention for type I alcoholism is correlated to a much better prognosis. In type II, there are problems with the emotional system itself[4], mainly regarding the opioid and dopamine systems. The lack of opioids is due to an insecure, ambivalent bonding[5] and/or the lack of dopamine due to a low neuroplasticity development in early infancy/adolescence leads to the main symptoms of personality disorders: fear of abandonment (opioid system) and lack of basic join in life called anhedonia (lack of basic dopamine level). The therapeutic goal in those situations can not be set as a real healing at integrum, but therapy can facilitate a better acceptance of the own "being in the world", living together with a vulnerable emotional system and making the best of it[6]. Marsha Linehan uses an image for that: "If life gives me lemons, I should make lemonade."

Interestingly, it is not the severity of the actual addiction or emotionally unstable symptoms that predicts the prognostic perspective. The evaluation of the prognostic factors must be done on the one hand considering recent traumatic aspects, actual resources (family, friends, home, economic situation, work, physical and mental health aspects, etc.); on the other hand, it must consider also general resources, like emotional and cognitive intelligence, capacity of introspection, level of resilience and level of adverse child experiences. The presence of children must be considered an important positive prognostic factor[7], as well as the presence of a partner, and even this might appear as a dysfunctional relationship. Nobody cures himself; normally, we cure ourselves for others whom we love. An initial realistic contract of aims to reach, constructing a therapeutic plan together with the patient is mandatory. If possible, it is mostly recommended to involve parents, friends and/or the employer.

Felitti et al[8] underlined that addiction in adults is highly correlated to adverse childhood experience/trauma, but patients are normally not aware of this correlation. For this reason, the therapeutic contest must be actively interested in those adverse biographic aspects and must systematically consider the main biographic events, despite only "speaking about" this can't be the only or not even the main therapeutic answer.

An important anecdotic story regarding the foundation of the 12-step groups of Alcoholics Anonymous says that around 1931 an American alcoholic patient, Roland H, underwent psychotherapy with CG Jung for about one year, but he relapsed shortly afterward. He returned to Jung, who frankly told him there was no more hope for him in any further medical or psychiatric treatment. Roland H. asked whether there was any other possibility to be treated, and Jung suggested to become the subject of a spiritual or religious experience, which might remotivate him entirely.

Roland H joined the Oxford Group, where he found a conversion experience, was relieved from his compulsion to drink, and devoted himself to helping other alcoholics. One of them, Eddy, followed his example, joined the Oxford Group, and was freed from his drinking compulsion. In November 1934, Eddy visited his friend Bill, whose case was considered hopeless, and told him of his experience. Bill afterward had a religious experience and a vision of a society of alcoholics transmitting their experience from one to the other. Eddy and Bill then founded the Society of Alcoholics Anonymous, whose following development is known ("Bill's Story"[9]).

The movement of the 12-step self-help groups founded in 1935 should be considered the first important and systematic psychosocial intervention for alcoholism worldwide, and for a long time, it was the only one. Nowadays, there are more than 100.000 AA groups in 160 nations over the world[10].

PSYCHOSOCIAL INTERVENTIONS FOR DUA IN ITALY, HISTORIC ASPECTS

Similarly, in Italy, the 12-step self-help groups found a large diffusion.
The second type of important self-help group, founded by Hudolin in 1964 and mainly spread in Italy, is called Cat (Club Alcologici Territoriali). The method used in CAT is based on the concept that alcoholics should join self-help groups together with their families and that all the family members should improve their lifestyle by avoiding alcohol consumption completely. In Italy, there are about 2.000 clubs following about 20.000 families11. It might be that the family-oriented society of the Italian Nation encouraged this family-oriented method.
The second main instrument for addiction treatment is the system of therapeutic communities raised in Italy, mainly in the sixties and seventies. In the early years of functioning, there was no differentiation between drug and alcohol addiction treatment. The concept was quite simple: human alliance in desperate situations of mainly heroin addiction, the founders had mainly a political or ecclesiastic background.
Only in the 90ies, a more scientific approach to psychosocial interventions in the addiction field came to a large diffusion: the construction of a new public healthcare system and the creation of ambulatory addiction services (Ser.D, "Servizi per le Dipendenze") happened after emending a specific law (162/90). The professional teams were built by multiprofessional operators (toxicologists, infectivologists, psychiatrists, nurses, social workers, pedagogic operators, and psychologists) in recognition of the complex potential factors underlying addiction situations. After opening the psychiatric asylums ("manicomi") due to the law 180/1978 ("legge Basaglia", 1978), a lot of alcoholics were discharged from the asylums after several years without a specific cure, and mostly, they simply relapsed. However, because of the Mediterranean pattern of drinking (without binge and with a high physical addiction), alcoholism was easily misinterpreted as an internal medicine disease due to the liver damage induced by chronic alcohol abuse and frequent dual diagnosis of hepatitis C.
Later in the 90ies, the idea of possible psychosocial therapeutic intervention for alcohol addicts rose. The first 28-day clinics, based on the main principles of the 12-step programs, opened ("Minnesota Model"[12]). Other 28-day clinics followed the Hudolin model. The need for more specific and professional instruments like the motivational interviewing promoted by Miller & Rollinck[13], and Prochaska & Di Clemente[14], and the relapse prevention program developed by Marlatt and Gordon[15] was acknowledged.
Some therapeutic communities started to introduce more specific and more scientific instruments for alcoholic patients[16,17]. Indeed, these methods led to better results even in Italy in the more specific residential interventions for AUD[18].
In addition, at the same time, clinical evidence showed that the traumatic and neuroplastic factors of alcohol addiction need to be considered in the therapeutic context for obtaining even better prognostic results[19].

TRAUMA AND NEUROPLASTICITY

Even knowing that addiction is linked to major adverse life events/trauma in infancy and/or adolescence[20,21], it is important to understand the extent.
In adults, the classification of Cloninger suggests the extension of trauma and helps us to find the therapeutic pass to treat addiction.
Type I: Considering the mainly mono-traumatic experiences of patients with alcoholism of this type, it is helpful to use the Horowitz model for trauma experiences[22]: after a traumatic, overwhelming experience comes up, a general emotional numbing interrupted later on, even after years of numbing by flash-back experiences and aspecific states of arousal. Healing or improving is possible using specific methods (afterward described for their theoretical background) that integrate the "cold" and "warm" memories, the episodic elaboration, and the correlated body experiences. Simplifying: the patient must learn to integrate hemispheres and the bottom-up/top-down emotional regulation systems. In this method ("Soranzo model"[23]), therapies like EMDR[24], symbolic interventions[25], and Prolonged Exposure Therapy[26] can go together with indirect posttraumatic therapies like music therapy, art therapy, yoga, mindfulness[27], bioenergetic experience[28], emotional groups, etc. This list should not be considered complete but only a sort of initial indication. Even aspecific interventions are worthwhile to reduce external stimuli, reducing or avoiding electronic devices in a natural environment, slow and rhythmic eating, practicing sports and movements. Only by creating a sort of inner field with less external distraction the specific posttraumatic intervention can be successful. Psychotherapy, especially cognitive/behavioral approaches, can be useful to a general final elaboration and planning for the future. Obviously, these therapeutic elements must remain integrated with the rest of the addiction program previously described.

SPECIFIC TRAUMA INTERVENTIONS: MEMORY RETRIEVAL AND RECONSOLIDATION

Until recently, it was believed that memory, after being stored, is stable forever. However, we now know that memories can be retrieved to strengthen, add, or remove information and then updated through a process called reconsolidation[29-32]. Research both in humans and animals has revealed the specific mechanisms underlying reconsolidation. It has been shown that retrieval of specific information corresponds to the activation of molecular cascades at the level of neurons, in particular, N-methyl-d-aspartate glutamate receptor (NMDARs) and β-adrenergic receptor, leading to activation of signaling pathways and phosphorylation of transcription factors[33]. When the mechanism is activated, it is vulnerable to being inhibited or altered by other concomitant information. The result is maintenance, disruption, or update of the retrieved information. The ability to retrieve and change some memories could be the basis for the intervention for disorders based on maladaptive memories, such as PTSD and AUD/SUD: new and safe information could be integrated into the initial memory trace so as to modify it. In fact, associative learning and memory play a central role in both AUD/SUD and PTSD. Older and newer psychotraumatologic interventions are based on this mechanism: "warming up" of memories into a vulnerable situation (with body-based interventions, symbolic work, etc.), introducing new emotional associations (for example, symbolic solutions, artistic expressions), new cognitive information, new holistic elaboration. In the final closing phase, which endures about 1-6 hours, the patient should not be disturbed by distractions. The "new", hopefully, less painful vision and memory of the same traumatic event becomes a real substitution for the old one. If trauma aspects are due to old physical traumas (sexual and other physical violence, accidents, etc.) the passway by bodywork (Feldenkrais, Bioenergetic, Yoga, etc.) can be considered useful to warm up painful memories. But nothing is worse than "warming up" memories without giving a better therapeutic answer[25]. Psychosomatic disorders like chronic head or back pain are often a dual diagnosis of alcoholism and come up worse when the AUD gets better, inducing easily new addiction behaviours for painkillers. It is worthwhile to consider this in the therapeutic setting[34].
Type II: Cloninger II alcoholism has at least two types of traumatic origins: bonding trauma in the first childhood, often mixed with neglect trauma. This can lead to real abandonment with later-on adoption, maybe in other countries. Those abandoned children and adolescents are difficult to cure because of the complexity of the more vulnerable cerebral neuronal network and the lack of resilience and positive experiences. Often, foster parents are not able to face this problematic situation, which leads to a second abandonment. Any treatment must pass through the idea of a "long-distance running", which may be lifelong. Chronic developments with legal, social and sanitary problems are frequent; harm reduction programs might be the first step for treatment. Housing is the first and most evident problem for homeless patients with alcohol problems, a vulnerable, socially disturbed and disturbing population that often is not able to ask for help in an assertive and effective way. Housing might be the first step for further therapeutic interventions.
The therapeutic community system in Italy helps to give immediate therapeutic answers to patients with Cloninger type II alcoholism, even to homeless patients affected by severe alcohol addiction, but only if they show at least a minimum of motivation to be cured. The harm reduction help for chronically homeless alcoholics without basic hope and motivation needs to be improved.
The younger patients are involved in the therapeutic system late, maybe only after being arrested or during psychiatric acute treatment in the Psychiatric Hospital Wards ("SPDC, Servizio Psichiatrico di Diagnosi e Cura"). The actual communities can give the therapeutic cures that are needed and requested only in rare cases.
The trauma aspects are so deep and difficult to treat directly that it is a good basic condition to have a validated environment with a non-judging atmosphere. Operators must have a peaceful and humoristic attachment. The therapeutic group of operators should operate with a low level of conflicts between themselves in residential as well as ambulatory settings. A good regular supervision might be helpful. Neuroplastic stimulation must be as free as possible from electronic devices. In residential settings/therapeutic communities, there must be a good and stable rhythm in all activities, including sleeping, eating, staying in nature, sports, relaxation, and mindfulness techniques. Pedagogic approaches are precious. Practical activities like cooking, gardening, art, music, relaxation techniques are important. But direct trauma elaboration techniques are normally contraindicated for the risk of overwhelming emotional material coming up in the multi-traumatized patients, overwhelming in that way their emotional instabilities leading to actings against others or harming behavior revolved to themselves. The frequent co-diagnosis of personality disorders, particularly of borderline syndromes, invites us to follow the therapeutic guidelines of Marsha Linehan[6]: the DBT (dialectic behavioural therapy) is a good integrative method.

NEC NUTRIMENTUM ET CURAE

The recent switch from more outdoor play, considered dangerous, to more indoor play, considered by parents more secure, has raised the use of electronic devices. It appears clear that more indoor time is highly and negatively correlated to social skills and competence and to physical activity. Time spent at home increases aggressive behavior and, paradoxly, also raises the probability of accidents[35].

Moreover, the massive use of electronic devices since early infancy seems responsible for a lot of other negative effects. One of those is the worsening of sleep quantity and quality. Freer is the direct access to a mobile phone, and more severe is the phenomenon. Bad sleep quality is probably correlated to the high light exposure from the device that diminishes melatonin production[36,37]. The adolescent brain suffers from a sort of chronic distraction, away from "real life", inducing in that way chronic multitasking: the brain is activated like in a parallel film on various channels of stimuli: music, social networks, games… what we think "real life" becomes less significant and less "real". Burgess et al[38] found that chronic multitasking, even in adults, leads to dementia-like symptoms and weakens the capacity to program personal objectives and life itself. Cognitive competencies, mathematical performance, and general understanding have an impact, and even virtual abilities decrease with chronic distraction and lack of relaxing situation[39]. Game and electronic addictions, in addition to a poor neuroplastic lifestyle, create a preexisting vulnerability before the first use of alcohol, drugs or other substances. Comportamental addictions like sex addiction, eating disorders, gambling, etc., become an explosive mix that complicates the traditional description of Cloninger type II alcoholism. Adverse life events can more easily become traumata.

CONCLUSIONS

Despite a long worldwide experience in psychosocial approaches for AUD, there is a great need, also in Italy, to develop new therapeutic answers for the changing phenomenon of alcohol addiction and poly-consumption. Neuroplasticity and trauma aspects are fundamental for new approaches. Further basic research is necessary to improve therapeutic understanding. Better harm reduction programs on one side and higher-level therapeutic programs on the other are needed.

Conflict of Interest:

The authors declare no conflict of interest.

References

1. Cloninger CR, Bohman M, Sigvardsson S. Inheritance of alcohol abuse: Cross-fostering analysis of adopted men. Arch Gen Psychiatry 1981;38(8):861-868.
2. Cloninger CR, Adolfsson R, Svrakie NM. Mapping genes for human personality. Nat Genet 1995;1:623-625.
3. Cloninger CR, Adolfsson R, Svrakie NM. Mapping genes for human personality. Nat Genet 1996;12:3-4.
4. Panksepp J, Biven L. The archaeology of Mind. WW Norton & Co, 2012.
5. Salter Ainsworth MD. Patterns of Attachment. Psychology Press & Rouledge, Classic Edition, 1978.
6. Linehan M. Cognitive-behavioral treatment of borderline personality disorder. Guilford Press, New York, 1993.
7. Wurmser L. The hidden dimension. Psychodynamics of Compulsive Drug Use. Jason Aronson Inc, New Jersey, 1978.
8. Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Marks JS. Relationship of childhood abuse and household dysfunction to many leading death in adults. The Adverse Childhood Experiences (ACE) Study. Am J Prev Med 1998 May;14(4):245-258.
9. Alcoholics anonymous big book. Alcoholics Anonymous World Services (4th ed.), 2002.
10. www.alcolistianonimiitalia.it
11. www.aicat.net
12. Anderson DJ, McGovern JP, DuPont RL. The origins of the Minnesota Model of addiction treatment – a first person account. J Addict Dis 1999;18(1):107-114.
13. Miller WR, Rollnik S. Motivational Interviewing, Helping People Change. The Guilford Press, New York, 2013.
14. Prochaska JO, DiClemente CC, Norcross JC. In search of how people change: Applications to addictive behaviors. Am Psychol 1992 Sep;47(9):1102-1114.
15. Marlatt GA, Gordon JR. Relaps prevention. Guilford Press, New York, 1985.
16. Hinnenthal I, Laki Z, Ardissone G. Psicotraumatologia e neuroplasticità. Presupposti teorici per la gestione clinica nel trattamento residenziale di alcolisti con poliabuso. In: Lucchini A, Nava F, Manzato E, editors. Buone Pratiche e Procedure Terapeutiche Nella Gestione del Paziente Alcolista. Milano: Franco Angeli, 2008; pp. 103-109.
17. Hinnenthal I. Villa Soranzo non è un luogo, è un'idea: aspetti pratici, clinici e di supervisione. In: Hinnenthal I, Cibin M, editors. Il Trattamento Residenziale Breve Delle Dipendenze da Alcol e Cocaine: Il Modello Soranzo. Torino: Seed Editore Torino, 2011; pp. 187-198.
18. Coreale G, Fiorentino D, De Rosa F, Solombrino s, Scalese B, Ciccarelli R, Attilia M, Musetti A, Fiore M, Ceccanti M. Treatment of alcohol abuse disor-

der from a psychological point of view. Riv Psichiatr. 2018;53(3):141-148.
19. Hinnenthal I, Spolaor G, Cibin M, Nante N, Schmidt R. Simboli, metafore e immagini nel trattamento psicoterapeutico del trauma e dell'addiction. Medicina Dipendenze 2013;12:31-36.
20. Levin Y, Lev Bar-Or R, Forer R, Vaserman M, Kor A, Lev-Run S. The association between typeof trauma, level of exposure and addiction. Addict Behav 2021 Jul;118:106889.
21. Crouch E, Probst JC, Radcliff E, Bennet KJ, McKinney SH. Prevalence of adverse childhoodexperiences (ACEs) among US children. Child Abuse Negl. 2019 Jun;92:209-218.
22. Horowitz M. Redefining Identity after Trauma or Loss. Psychodyn Psychiatry. 2018 Spring;46(1):135-140.
23. Hinnenthal I, Cibin M. Il trattamento residenziale breve delle dipendenze da alcol e cocaina. Il modello Soranzo. Seed Editore, Torino, 2011.
24. Shapiro F. Eye movement desensitisation: a new treatment for posttraumatic stress disorder. J Behav Ther Exp Psychiatry 1989;20(3):211-217.
25. Hinnenthal I, AsamEbner C. Psicotraumatologia. In: Hinnenthal I, Cibin M, editors. Il Trattamento Residenziale Breve Delle Dipendenze da Alcol e Cocaine: Il Modello Soranzo. Torino: Seed Editore Torino, 2011; pp. 123-134.
26. Foa E B. Prolongedexposuretherapy: past, present and future. Depress Anxiety. 2011 Dec 21; 28(12): 1043-1047.
27. Thich NH. Mindfulness, in italiano: Il miracolo della presenza mentale. Un manuale di meditazione, Astrolabio Ubaldini, 1992.
28. Lowen A. Bioenergetics. Coward, McCann & Geoghehan, New York, 1975.
29. Nader K, Shafe GE, Ledoux JE. The labile nature of consolidation theorz. Nat Rev Neusci 2000;1:216-219.
30. Sara SJ. Retrieval and reconsolidation: toward a neurobiology of remembering. Learn Mem 2002;7(2):73-84.
31. Cibin M, Jester A, Leonardini L, Lugato E, Papanastasatos G. Transnational catalogue of www.frontiersin.org August 2014 | Volume 5 | Article 107 | ulera et al. Reconsolidation memory as therapeutic target intervention options for young polidrug users. Strategic European Inventory on Drugs. E.U. Executive Agency for Health and Consumers. (2010). Available from: http://lnx.ceisdonmilani. com/seidproject/Transnational_Catalogue.pdf
32. Taylor JR, Olausson P, Quinn JJ, Torregrossa MM. Targeting extinction and reconsolidation mechanisms to combat the impact of drug cues on addiction. Neuropharmacology 2009;56(Suppl 1):186-195. Doi: 10.1016/j.neuropharm.2008.07.027
33. Tronson NC, Taylor JR. Addiction: a drug-induced disorder of memory consolidation. Curr Opin Neurobiol. 2013;23:573-580
34. Hinnenthal I, Cibin M, Giuffra E, Spolaor G, Schmidt R. Trattamento non (solo) farmacologico del dolore cronico. In: Analgesici oppiodi. Uso, abuso e addiction. Lugoboni F, Zamboni L, (Eds.), Edizioni Clad Onlus, 2015.
35. Brussoni M, Gibbons R, Gray C, Ishikawa T, Sandseter EB, Bienenstock A, Chabot G, Fusilli P, Herrington S, Janssen I, Pickett W, Power M, Stanger N, Sampson M, Tremblay MS. What is the Relationship between Risky Outdoor Play and Health in Children? A Systematic Review. Int J Environ Res Public Health 2015 Jun 8;12(6):6423-6454.
36. Lemola S, Perkinson-Gloor N, Brand S, Dewald-Kaufmann JF, Grob A. Adolescents' electronic media use at night, sleep disturbances, and depressive symptoms in the smart-phone age. J Youth Adolesc 2015 Feb;44(2):405-418.
37.Chang AM, Aeschbach D, Duffy JF, Czeisler CA. Evening use of light-emitting eReaders negatively affects sleep, circadian timing, and next-morning alertness. Proc Natl Acad Sci USA. 2015 Jan 27;112(4):1232-1237.
38. Burgess PW. Strategy application disorder: the role of the frontal lobes in human multitasking. Psychol Res 2000;63(3-4):279-288.
39. Guo R, Liu Y, Lu HJ, Jing A. Can you accurately monitor your behaviors while multitasking? The effect of multitasking on metacognition. Psychol Res. 2023 Sep 14. Doi: 10.1007/s00426-023-01875-z. Online ahead of print.