

Issue III

YellowBrick^M journal

of Emerging Adulthood

Letter from the Editors

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Mission

ellowbrick Journal is the official publication of Yellowbrick Foundation, a not-for-profit organization, whose mission is to support research, training and community education regarding the emotional, psychological, and developmental challenges of emerging adults, ages 18 to 29. Yellowbrick Journal is dedicated to the dissemination of work that informs the Yellowbrick model—a research-based treatment model that combines the most current contributions of developmental psychology, neuroscience, innovative psychotherapies, strength-based strategies and wellness medicine. Yellowbrick Journal highlights cutting-edge research that informs our understanding of emerging adults from a holistic perspective. Yellowbrick Journal publishes articles on applied work that has demonstrated effectiveness and is particularly dedicated to work that emphasizes multi-specialty evaluation, therapeutic residences, research-based strategies, and life-skills interventions. Yellowbrick Journal represents the voices and perspectives of those who serve as the catalysts for the evolution of Yellowbrick—emerging adults and all who are dedicated to the optimization of their potentials.

Letter From The Editors

Editorial Introduction to Issue III

Yellowbrick Journal Issue III opens with Dr. Jeffrey Jensen Arnett's introduction to his theory of emerging adulthood: *Emerging Adulthood: The Perils and Promise of a New Life Stage.* Arnett's seminal article, *The Theory of Emerging Adulthood,* was first published in 2000 in *American Psychologist.* Since then, this new way of understanding young people in the 21st century has helped the general public, as well as scientists and practitioners embrace this new life stage. Mid-20th century shifts in the way youth accumulate education, establish careers, and make decisions about marriage and parenthood resulted in a space between adolescence and full adulthood. We now call these exploratory years— *emerging adulthood.*

Working under Arnett's assumption that these years are characterized by distinct tasks and experiences, the charge to us is to consider how we might better understand psychiatric disorder and mental health if we accept the premise that old ways of knowing are not sufficient. In this issue, three articles demonstrate how embracing the theory of emerging adulthood can help us make gains and do better in meeting the needs of emerging adults dealing with psychiatric issues.

First, Dr. David Hamilton, in his article, *Transcranial Magentic Stimulaiton for Depression in Emerging Adults*, provides a review of approaches psychiatrists historically have used when confronted with treatment-resistant depression. Recognizing limitations of traditional methods takes on a greater significance when Hamilton points out the additional challenges that surface in emerging adult cases. Treating psychiatrists are confronted with the need to avoid risks related to working with patients whose brains remain in development and for whom reproductive goals are an issue. Transcranial Magnetic Stimulation offers a promising alternative treatment for depression in emerging adults.

Next, in *An Exploration of "Forgiveness" in a Clinical Population of Emerging Adults*, Dr. David Daskovsky puts a spotlight on forgiveness as a critical element of the recovery process. He highlights the particularly challenging nature of forgiveness in emerging adults. At no other stage in the life span does the separation-individuation process take center stage like it does in emerging adulthood. Nurturing and comforting self, as well as understanding self, are critical components of identity and a prerequisite to forming healthy relationships. Not forgiving, then, can be a barrier to establishing healthy identity and achieving intimacy. Using *The Forgiveness Survey*, Daskovsky is able to deliver information and keen clinical insight to help readers grasp how emerging adults' views of forgiveness may be present as a barrier in their recovery.

Dr. Jesse Viner, Dr. Laura Viner, and Dr. Dale Monroe-Cook approach the treatment of substance abuse disorders in emerging adulthood with a new-way-of-viewing an old problem in their article, *"Minding the Brain": A Developmental Neurobiological Model for Substance Abuse Treatment in Emerging Adults*. This work introduces a model that pays great homage to stage-specific neuroplasticity, while at the same time integrating traditional therapies. Evolving from their experiences working work with emerging adults, this bottom-up model respects the developmental distinctiveness of the age period. Articulation of this new model for approaching work with emerging adults dealing with substance abuse disorders does double duty by also providing an example of the way clinicians can work with emerging adults and learn to see them in a 21st century way.

The third issue of Yellowbrick Journal concludes with what is to be tradition, the *LITERATURE REVIEW*. This issue's literature review is a compilation of articles that contain "teachable moments" with respect to how we can think about emerging adults as developing persons. As we come to accept the notion that emerging adulthood is a new and a distinct life stage, we are accepting the developmental point-of-view and we are learning to appreciate what developmentalists know best—age and stage matter. The works selected for this literature review are examples of the way developmental research seeks to understand how normal and abnormal development play together, over time, within an individual's life. Reading developmental research and thinking like a developmentalist is key to integrating the developmental lens into treatment models that accept the distinctiveness of the emerging adult years.

Laura Viner



Jennifer Tanner

Emerging Adulthood: The Perils and Promise of a New Life Stage

Jeffrey Jensen Arnett, PhD

Why does it take so long to grow up these days? Why is the road to adulthood so much longer and more perilous than it used to be?

Many people find themselves asking these questions today, whether as parents, mental health practitioners, or young people themselves. The theory of emerging adulthood proposes that a new life stage has arisen between adolescence and young adulthood over the past half century in economically developed countries. Fifty years ago, most young people in these countries had entered stable adult roles in love and work by their late teens or early twenties. Relatively few people pursued education or training beyond secondary school, and consequently most young men were full-time workers by the end of their teens. Relatively few women worked in occupations outside the home, and the median age of marriage in 1960 was around 20 years old for women in the U.S. and most other developed countries (Arnett & Taber, 1994; Douglass, 2005). The median marriage age for men was around 22, and married couples usually had their first child about one year after their wedding day. All told, for most young people half a century ago their teenage adolescence led quickly and directly to stable adult roles in love and work by their late teens or early twenties. These roles would form the structure of their adult lives for decades to come.

Now all that has changed. A higher proportion of young people than ever before—over 60% in the U.S. —pursue education and training beyond secondary school (National Center for Education Statistics, 2011). The early twenties are not a time of entering stable adult work but a time of immense job instability; the average number of job changes from age 20-29 in the U.S. is seven. The median age of entering marriage in the U.S. is now 26 for women and 28 for men (U.S. Bureau of the Census, 2011). Consequently, a new stage of the life span, emerging adulthood, has been created, lasting from the late teens through the mid-twenties.

I have proposed 5 features that distinguish emerging adulthood from the adolescence that precedes it or the young adulthood that follows it (Arnett, 2004). Emerging adulthood is the age of identity explorations, that is, the period of life when people are moving toward making crucial choices in love and work, based on their judgment of their interests and preferences and how these fit into the possibilities available to them. It is the *age of instability*, because in the course of pursuing their identity explorations emerging adults frequently change love partners, jobs, educational directions, and living arrangements. It is the self-focused age, because it is the period of life when people have the fewest daily role obligations and thus the greatest scope for independent decision-making. It is the age of *feeling in-between,* because emerging adulthood is when people are most likely to feel they are neither adolescents nor adults but somewhere in-between, on the way to adulthood but not there yet. Finally, it is the *age of possibilities*, because no matter what

their lives are like now, nearly everyone believes in emerging adulthood that eventually life will smile on them and they will achieve the adult life they envision.

These features distinguish emerging adulthood from adolescence or young adulthood but are not unique to it. All of them begin in adolescence and continue into young adulthood, but emerging adulthood is when they reach their peak.

Mental Health Issues in Emerging Adulthood

Emerging adulthood is a life stage when mental health disorders are especially common. According to one national study, nearly half of 19-25 year-olds in the United States have had a psychiatric disorder within the past year (Blanco et al., 2008). The most common disorders in this age group are major depression, anxiety disorder, and substance abuse.

The five developmental features of emerging adulthood each make some contribution to mental health disorders during this life stage. Identity explorations are often exciting and enjoyable, as emerging adults try out potential paths to adult life in love and work. However, the identity challenges of emerging adulthood can also be daunting for those who have difficulty determining which paths to choose and for those who feel that the paths they wish to pursue are closed to them. The instability of emerging adulthood can mean that social support is often inadequate, because changing directions often requires leaving friends, family, and romantic partners behind. Being self-focused in emerging adulthood can induce an exhilarating sense of freedom, but it can also be lonely. Feeling in-between can lead to anxiety for emerging adults who fear that they are not making progress toward adulthood as quickly as they should be. Finally, the high hopes that make emerging adulthood the age of possibilities can lead to disappointment and frustration when those hopes fail to come to fruition.

The Promise and Potential of the Emerging Adult Years

Although emerging adulthood is a high-risk period for mental health disorders, this does not mean that it is generally an especially unhappy time of life. On the contrary, the paradox of mental health in emerging adulthood is that even as the risk of mental health disorders increases from adolescence to emerging adulthood, self-esteem rises steadily from age 18 through the twenties (Galambos et al., 2006; Schulenberg & Zarrett, 2006). Most emerging adults feel better about themselves and their lives during the course of this stage, even as an increasing proportion of them experience serious difficulties. Perhaps the explanation is that emerging adulthood is the most heterogeneous stage of life, with the widest scope for individual choice and freedom about everything from what to have for dinner to what country to live in. Most emerging adults thrive on this freedom, but some find it overwhelming or have too few resources to make the most of it.

Emerging adults are sometimes scolded or even ridiculed because they have such a positive view of themselves and such high expectations for life (Twenge, 2006). However, it would be wise to see their optimism and high self-esteem as mental health resources they can draw upon. Believing in themselves and in the bright promise of the future gives them strength to persevere through the challenges that inevitably await them during this especially challenging stage of life.

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Transcranial Magnetic Stimulation for Depression in Emerging Adults

David V. Hamilton, MD¹

Psychiatrists experience some version of the "difficult to treat" patient everyday when presented with the need to treat depression. An added layer of complexity arises when working with emerging adults (ages 18 to 29) who present with age- and stage-specific conditions and issues. For example, there is the twenty-four year-old patient who refuses to try SSRI antidepressants after reading the black box warning that tells him the medication may cause him to experience suicidal thoughts. There is the twenty-three year old woman on a staggering list of medications for various medical comorbidities; this makes the provider cringe at all of the possible drug interactions. Still there is the nineteen-year-old young woman who wants to know if this antidepressant is going to interfere with her birth control pills, and, if she does conceive, is the antidepressant going to hurt the fetus? And there are those patients for whom treatments have been ineffective, such as the twenty-five year old young man who has"tried everything;" his frustration and agitation is accelerated by ineffective treatments.

Complicated cases of medicating young patients suffering from major depressive disorder require psychiatrists to deviate from standard protocol. This is a particularly frustrating concern when the psychiatrist acknowledges that emerging adults are, for the first time, learning to be responsible for their own mental health care. The impetus to find a curative therapy in the emerging adult patient is magnified by recognition of the amount of life yet to live.

Despite the complexity of these cases and the current lack of a literature guiding their treatment, psychiatrists see opportunity for successful treatment given the exceedingly high neuroplasticity normative to this age period. Brain tissue has an unparalleled opportunity to organize and reorganize its function on the basis of stimuli and functional demands. In no developmental epoch beyond emerging adulthood will the brain be able to change on the basis of its environment.

The burden of depression

Depression is a particularly insidious psychiatric disease given its associated burden. The burden of depression stretches across the life span; the earlier it begins, the more damaging its course. By 2020, the WHO projects depression to reach 2nd place of disability adjusted life years (DALYs), the sum of years of potential life lost due to premature mortality and years of productive life lost due to disability. For male and female emerging adults (ages 15 – 44 years; WHO data), depression is the 2nd most leading cause of DALYs. For the majority of patients treated for depression, remission is possible and even predicted. Findings from the Sequenced Treatment Alternative to Relieve Depression (STAR-D) study, considered the largest and most comprehensive treatment of depression study to date, reveal that 2/3rds of depressed patients will eventually achieve remission from psychotropic medications and/or psychotherapy. Of the 2/3rds who experience effective treatments, 1/3rd of patients achieve remission from the first medication trial, and the other 1/3rd of patients after trying between one and three other medications and/or cognitive behavioral therapy (CBT) (Rush, 2006).

At greatest risk for depression-related burden are those for whom standard treatments are not effective. Results from the same STAR-D study indicate that nearly 1/3rd of depressed patients with access to care will not achieve remission from their depression even after multiple medication trials and the addition of CBT. The incomplete efficacy of psychotherapeutic and psychopharmacologic approaches to the treatment of depression leaves psychiatrists with a relatively large minority of patients to treat for whom standard treatments do not work—a constituency of patients with treatment-resistant depression (TRD) (Rush, 2006).

In addition to those for whom standard treatments for depression prove ineffective, a second set of emerging adults is at-risk— those patients for whom medication is contraindicated. There are several reasons why this may be the case. Some patients are unable to tolerate the side effects of antidepressant medications. Others have comorbid medical conditions that disallow the use of such medications. One condition that presents a specific challenge is pregnancy given that emerging adulthood is the era of peak fertility and pregnancy. Ongoing concerns about the use of antidepressants during pregnancy and the post-partum period, a time of increased probability of experiencing depression, complicate the decision to use medications to treat depression. With such a large number of patients unable to find relief from the available psychotropic medications, a number of non-medication approaches to the treatment of depression have been researched and found to be effective. These approaches fall under the broad category of *neuromodulatory therapies*.

Neuromodulatory therapies for depression

The use of neuromodulatory therapies is by no means novel. The oldest of these approaches, electroconvulsive therapy (ECT) was first used in 1938 by Cerletti and Bini, two Italian psychiatrists. Introduction of ECT as a treatment for depression predated the advent of the first antidepressant medication, imipramine, by over 15 years. Although other neuromodulatory therapies are FDA approved for the treatment of depression, (e.g., deep brain stimulation, vagal nerve stimulation), ECT stands alone as most effectual.

Despite the fact that ECT is the most effective treatment in the psychiatric armamentarium for the treatment of severe depression, the method suffers a poor-fitting reputation. Shocking portrayals of this treatment method—the most famous one the depiction of its use in One Flew over the Cuckoo's nest—continue to contribute to its underutilization. Graphic depictions of ECT intended to shock audiences do not reflect today's patients' experiences. The use of anesthesia during the procedure, changes in the amount and method of delivery of electrical impulses, and alternative lead placements have made ECT far safer and more humane than the procedure portrayed in such films.

¹Dr. Hamilton is wholly employed by Yellowbrick and has no competing financial interests to disclose.

Transcranial Magnetic Stimulation (TMS)

Responding to the need for a noninvasive, non-convulsive, non-medication theory, Transcranial Magnetic Stimulation (TMS) has been advanced as a promising new approach for use with difficult to treat patients. The use of TMS for the treatment of depression represents a long sought after paradigm shift in psychiatry. TMS is the first noninvasive and nonconvulsive procedure that relies on the stimulation of neurophysiological circuits known to be necessary in maintaining mood. It is FDA-approved for the treatment of patients who have not responded to at least one trial of medications, and might cautiously be considered as a front line therapy in those patients who are unable to tolerate a full trial of an antidepressant medication. TMS is particularly promising for work with emerging adults. It is a 37-minute outpatient procedure requiring no anesthesia or sedation, therefore allowing patients to attend to tasks of daily living with relatively little interruption. In the case of emerging adults, learning tasks of daily living, going to school, planning careers, and establishing intimate relationships all benefit from maintaining focus. Second, the tre atment is time-limited, lasting 4 to 6 weeks, which means that this treatment can be delivered during non-pregnancy periods.

The history of TMS

TMS was first developed in 1985 as a non-invasive method of mapping the brain, in particular the motor cortex (Barker, 1985). Barker et al employed a principle first understood in the 19th century: transcranial magnetic induction. First discovered by Michael Faraday in 1831, electromagnetic induction describes the production of voltage – or the flow of electron current – caused by a change in a magnetic field. Rapidly alternating the flow of electrical current within a coil of wire produces a magnetic field, which in turn allows for the production of precise electric current within large neurons perpendicular to the coil. By inducing an electric current in a particular part of the brain through the use of TMS, the function of that part of the brain is revealed without damaging the brain tissue. The result was a simulated map of neurons, called a neural network, that synthetically modeled specific brain functions.

Several researchers employing TMS as a tool for brain mapping noted incidentally that some of their research subjects reported improvement in mood after undergoing TMS (Bickford, 1987). As brain-mapping research progressed, prefrontal depolarization of large neurons in the left prefrontal cortex was found to reliably produce improvement in mood. Daily left prefrontal TMS over several weeks was first proposed as a treatment for major depressive disorder in 1993. Since the early 1990s, TMS has been extensively studied for the treatment of major depressive disorder, typically using a left prefrontal cortex placement. Of the studies that have been published, several concomitant meta-analyses of them have concluded that left prefrontal TMS provided statistical superiority over sham treatment for patients with major depressive disorder (George, 2010). A number of clinical features have been demonstrated to be associated with greater response; these include younger age, diminished resistance to antidepressants, and an absence of psychotic features. The first double-blind, placebo-controlled (i.e. sham treatment) began in 1997 and FDA approval of the use of TMS for the treatment of major depressive disorder was secured in 2008 (George, 2011).

Using TMS

Patients are expected to tolerate TMS well and report few side effects. A TMS session begins with the coil being placed over the motor cortex, a part of the brain that lies on the left side of the patient's head. The amount of energy necessary to cause depolarization of motor neurons and cause the thumb to twitch determines the patient's motor threshold (MT). Depending on the treatment protocol employed, the coil is then moved 7 cm forward, laying over the prefrontal cortex. The percentage of MT energy employed per pulse is a function of age (i.e. normal aging causes the brain to shrink, increasing its distance from the coil) and the patient's ability to tolerate the local effects of the energy pulse.

Patients report a wide variety of experiences during the TMS sessions. Some experience no sensation at all, while others experience a tingling sensation, local muscle tension, or headache. The typical TMS treatment of depression consists of a 37-minute session delivering between three thousand to six thousand pulses, five days a week for four to eight weeks. As accuracy of the magnetic field and associated electrical stimulus is of paramount importance, the patient lies in a reclined position with the coil held securely against the head over the left prefrontal cortex in the treatment of major depressive disorder.



Efficacy of TMS

To date, there have been three large multisite trials of TMS for the treatment of major depressive disorder. A European trial of 127 patients used TMS versus sham for the augmentation of medication startup. This trial failed to find any augmenting effect of TMS (Avery, 2008). A TMS manufacturer in the United States randomly assigned 301 medication-free patients with major depression to receive either active TMS or sham treatment for four to six weeks (O'Reardon, 2008). In this trial, effect size was observed to be larger in those patients whose depression was historically less resistant to treatment with medications. This explains the FDA approval of TMS in 2008 for the treatment of major depressive disorder in adult patients who have failed to achieve satisfactory improvement from one prior antidepressant trial at or above the minimal effective dosage and duration in the current episode.

Significant controversy exists over the relative utility of TMS compared with ECT. An initial study by Eranti et al published in 2007 found that TMS was inferior to ECT, although the side effect profile was found to be significantly better than ECT (Eranti, 2007). However, this study suffered from a number of significant design flaws, most significant among these being that patients assigned to the TMS group received only 15,000 total pulses, far less than the typical total amount of energy now employed in TMS therapy (Janicak, 2007). STAR-D remains the largest study to date of pharmacologic and psychotherapeutic (i.e. CBT only) modalities for the treatment of major depressive disorder. The STAR-D study, while not naturalistic , followed a protocol that was devised to simulate the manner in which a psychiatrist might recommend serial therapies for patients who have not responded to early treatment. The three large, multicenter TMS trials have shown a placebo (i.e. sham) effect of 5% to 8%, compared to efficacy of TMS rates of between 15% and 48%. The STAR-D study helps to put these numbers into context. The initial therapy used in the STAR-D protocol, citalopram, showed efficacy of approximately 33%, with the following round of treatments dropping to approximately 20%. By the third and fourth rounds, only 6-7% of patients responded (Rush, 2006). Compared to these numbers, efficacy rates between 15% and 48% for TMS become attractive, especially when compounded with the relative absence of side effects and long-term complications.

Conclusion

It is proposed that emerging adulthood is a developmental epoch particularly positioned to take advantage of the use of TMS for depression in difficult-to-treat emerging adults, ages 18 to 29. Young people in this age range may be especially likely to benefit from TMS because this is a sensitive period of post-pediatric neuroplasticity. With the 2008 FDA-approval, TMS has left the laboratory and entered clinical use. TMS currently offers us a chance to help emerging adults that might otherwise not receive optimal therapy or relief from their symptoms at a time that is so crucial to the makeup of the rest of their lives. Researchers are already at work on future generations of TMS that will allow for deeper and more specific brain structures to be reached and treated. Until then, the current iteration of TMS technology will bring hope to patients that might have seen their treatment options dwindling. Research is underway exploring the role that TMS might play in the treatment of a wide variety of disorders, from post-traumatic stress disorder to obsessive-compulsive disorder, bipolar depression to chronic anxiety. Outside of the psychiatric realm, TMS is utilized for such disparate conditions as chronic pain, cortical blindness, and beyond. The expansion of the psychiatric armamentarium by the addition of TMS represents a change in the way that we view the treatment of depression, and a change in the patients we believe are "difficult to treat." The application of thistechnology to emerging adults is another tool that improves our chances of giving these patients the best chance for optimal functioning during the time of life that is so crucial in defining personal identity and one's identity in the world.

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An exploration of "forgiveness" in a clinical population of emerging adults

David Daskovsky, PhD

This paper explores the role of forgiveness in a clinical sample of emerging adults. Therapeutically, forgiveness is often part of the recovery process. A lack of participation in the forgiveness process can result in "stuckness" and may thwart recovery from psychiatric disorder. Understanding what stands between emerging adults and forgiveness may help practitioners and those involved in the treatment and care of emerging adults understand what barriers may impede recovery. This paper explores two questions: what underlies the clinical observation that some young people cannot or will not forgive others? And, How does "unforgiveness" relate to the specific developmental challenges of emerging adulthood?

Derivation of forgiveness

Clinical experience and psychological science inform us that the ability to forgive another, oneself, God or the Fates, is a requirement for successfully mourning losses and for moving ahead in our lives. The degree to which we remain stuck in our anger, in desires for vengeance or retribution, or in self-recrimination appears to be rooted in our pasts. Not forgiving is directly related to allegiances to prior injuries and a need to reenact dramas rather than, alternatively, directing energy to bind wounds and move ahead. Yet, as intuitive and straightforward as this formulation seems to be, the reasons why we may be unable or unwilling to forgive are complex, various, and omnipresent. Both forgiveness and "unforgiveness" have long been topics of interest in the fields of religion and philosophy. In the past three decades these issues have also generated considerable discussion in the social, personality, and clinical psychology literatures. A recent meta-analysis of the research in this area (Fehr et al., 2010) found over 800 studies on forgiveness published prior to 2005, with several hundred more appearing since then. This body of research has addressed a wide range of interesting and important issues related to forgiveness. For example, some work has elucidated how personality characteristics such as narcissism, agreeableness, and a capacity for empathy may impact a person's ability to forgive (Emmons, 2000; Fehr et al., 2010). Work

has also demonstrated that there are both health (Exline et al., 2000) and mental health benefits (e.g., Wade et al., 2005; Herman, 1992; Freedman, 1996) derived from forgiveness. Still other studies have revealed the contextual nature of forgiveness: forgiveness is more likely in the context of a committed relationship (Exline, 2004), interventions designed to promote forgiveness in psychotherapy can be effective and useful (Wade, 2005; Wade, 2008), and, given some situations, forgiving may be more destructive than not (Baumeister, 1998; Wade, 2005). What has been less prevalent in the literature, with a few notable exceptions (e.g., Doyle, 1999), have been studies which might help us to understand the complicated and interwoven dynamic factors which impede an individual's willingness or ability to forgive. In particular, we know very little about the way forgiveness is experienced at different ages and developmental stages.

Forgiveness in emerging adulthood

In the past decade, a new theoretical framework for thinking about the development of individuals ages 18 to 25 has provided an opportunity to think about how this age period may be distinct from younger and later life stages. Arnett (2000) introduced the concept "emerging adulthood" to describe the new way that 18 to 25 year-olds in industrialized countries experience the years between adolescence and young adulthood. He argued that we could understand this age group to be distinct from others because they were different demographically, subjectively, and psychologically. From qualitative interviews with over 300 emerging adults, Arnett (2004) described emerging adults as unique in that they can be identified by five characteristics: "in-between," instability, full of possibilities, self-focused, and in search of identity.

Emerging adulthood is also a distinct stage of development because these years present distinct developmental tasks in the course of individual life span development. Tanner (2006) proposed the concept of recentering to describe the normative transition to adulthood from a developmental systems perspective. That is, how does a young person develop in context? In three stages, emerging adults

can be expected to: (1) renegotiate their relationships with their parents and contexts in which they behaved as dependents, (2) explore different roles and relationships of adulthood (e.g., careers, relationships, living situations), and (3), commit to responsibilities that, in turn, provide support for development and adaptation across adulthood. In a related article, Scharf et al. (2004) identified three criticial, intrapsychic tasks of the age period: coping with the leaving home transition; increasing capacity for mature intimacy in friendships and romantic relationships while maintaining close relationships with parents; and, developing a sense of individuality and effectiveness in the world.

In sum, the major developmental tasks of emerging adulthood involve both a letting go/mourning (i.e., of home, of a dependent relationship with parents, etc.) and a moving forward (i.e., toward adult responsibility, career, relationship, etc.). To the degree that difficulty in forgiving seems to impede letting go of the past and also moving ahead (Doyle, 1999; Herman, 1992; McWilliams, 2004), it makes sense to hypothesize that difficulty with forgiving would have particular salience during emerging adulthood. This study is designed as a preliminary exploration of these issues.

The Forgiveness Study

This current study is an exploration of the ways emerging adults think about forgiveness with respect to their past experiences. All participants who completed the study (with the exception of one who was an office psychotherapy patient) were emerging adults between the ages of 20 and 28, who were engaged in an intensive, psychodynamicallyoriented, residential psychotherapy treatment program designed for this population. All subjects had psychiatric diagnoses, primarily non-psychotic Axis I disorders and/or Cluster B personality/self regulation disorders. All were involved in treatment because, to some significant degree, they had been unable to separate and/or become independently functioning adults.

The Forgiveness Survey (Appendix A) was administered to fifteen (15) patients in an effort to gain information about the way these patients understood and wrote about forgiveness with respect to their recovery. In this study 'forgiveness' was defined as an "intrapersonal process, in which the injured party comes to some resolution of their hurt and anger toward the offender, gives up wishes for revenge and makes some degree of peace with the offending events (Wade et al., 2005)." For the purposes of this study, forgiveness did not necessarily imply reconciliation, condoning or forgetting the harmful action. This survey was conducted in the context of a psychoeducational group about relationships. Responses were written and confidential. Discussion of the survey and the issues raised occurred after participants had finished responding to the survey questions.

Findings from The Forgiveness Survey

The participants' responses were analyzed by the author with assistance from two colleagues. The goals of the analysis were to: (1) identify core themes that emerged across responses, and (2) organize participants' responses according to the themes that emerged. With respect to interpretation of findings, responses are understood to represent motivations of which young people are consciously aware. Because patients are participants in psychodynamic treatment they also may represent unconscious themes that have come to their attention in the course of their psychotherapy.

Reasons for not forgiving others

All together, nine (9) themes emerged in the analysis of the first question: Think of a situation in which you have been unable or unwilling to forgive another (this could be a person or persons, it could also be God or fate); Are you unable to forgive or unwilling? (Table 1.) Some of the emerging adults showed considerable ambivalence about the prospect of moving forward into adulthood. Some of their reasons for not forgiving have a regressive quality while others seem progressive. Much of what the emerging adult participants said about their own motivations for not forgiving pointed to a range of conscious and unconscious defensive functions. They were motivated not to forgive in order to: avoid feeling certain emotions, especially anger and sadness; hold on to childhood wishes; avoid mourning; benefit from a depressive defense against hope and the possibility of further loss; and, protect against the fear of growing up.

In a number of instances, the emerging adult spoke from the role of the injured party; he

or she derived pleasure in the power of being the injured one (e.g., "I like to feel resentful, self-righteous and superior."). In other cases, this "power" had an adolescent and victimlike quality. It is not the sense of power that derives from an achieved sense-of-mastery, but one that comes from standing on the moral high ground of victimhood. Some who felt victimized had moral or justice-based reasons for not forgiving (e.g., "I don't want to give an inch when there is injustice or when things aren't fair."). Clinically, such a stance, if perpetuated, would prevent a person from working toward a more genuine sense-of-mastery and power in the world. Linehan (1993) calls this stance "cutting off your nose to spite your face," and points out its self-defeating nature. With respect to the behaviors of emerging adults, these feelings about forgiveness may manifest themselves in behaviors such as refusal to care for self or refusal to obtain employment until a neglectful parent makes good on the implicit promises of their parenthood.

Reasons for not forgiving self

Seven (7) themes described emerging adults' reasons for not forgiving others (Table 2). Broadly, when it came to not forgiving oneself, several subjects said that this would require acknowledging that he/ she had made mistakes, or had limitations, or perhaps, accepting that he/she had failed in some respect. Sometimes subjects reported preferring to blame him- or herself in lieu of blaming others. Often, participants described how "unforgiveness" of self took the form of guilt or shame. Each of these self experiences and belief systems appears to be in the service of protecting against something that was even more aversive (e.g., being angry with oneself rather than risking anger at another or living in denial rather than facing and dealing with realistic limitations). While these coping/defensive strategies may be effective in protecting individuals from immediate pain and suffering, it also is apparent that these ways of coping interfere directly with the crucial developmental processes of emerging adulthood. One can not leave home, mourn the accompanying losses and make decisions about the future while holding on to childhood wishes, avoiding key emotions, not facing the reality of one's own strengths and limitations, trying to dodge the possibility of loss and protecting against the fear of growing up.

On the other hand, some of the examples of unforgiveness in this survey seemed to represent progressive steps toward selfassertion. In some cases, an unwillingness to forgive represented the establishment of a needed interpersonal boundary or the validation of a hitherto disavowed feeling (e.g., "I would be giving up my right to be mad."). In other cases, not forgiving felt like it offered a certain degree of self-protection when the transgressor had not acknowledged guilt or continued to harm (e.g., "He asks for forgiveness but he keeps doing the same thing."). This is an important idea, in that it suggests that given certain relational and developmental contexts, not forgiving may be the more progressive alternative (Luchies et al., 2010; Herman, 1992).

Conclusion

Understanding forgiveness in the context of the developmental challenges specific to the emerging adult years is useful for examining how the processes relate. The tasks of emerging adulthood confront us with some of the most critical and difficult developmental challenges of our lives. We are asked to let go of the relative safety and protectiveness of home and family and to grieve the losses attendant to this letting go. This is the time to choose paths forward toward career, toward relationship and to deal with the inevitable uncertainty and fears associated with the choices. Like it or not, we are brought face to face with the realities of our strengths and our limitations as we test ourselves in the world. This is when we risk declaring "This is who I am," on a wide range of fronts and then have to deal with the consequences. At the same time, we are attempting to do this while developing a different, but still significant kind of relationship with our family of origin. It is striking that forgiveness requires a similar set of capacities and tasks: to face the reality of the injury, to tolerate the anger, the hurt, the sadness, to grieve losses, to recognize and come to terms with our own feet of clay so that we might also have some compassion for the human failings of our offender (McWilliams, 2004; Viner, 2001), and then to be able to move ahead with our lives. The data from this exploratory study suggests that it may not be whether one forgives or not that determines one's progress forward developmentally. Forgiveness is a mature task that requires a relatively secure sense of self to: tolerate the reality of the injuring situation, feel the emotions related to this, confront the transgressor in person or within oneself, and attempt to resolve conflicts. It seems as if these factors: denying the reality of losses, avoidance of conflict, denial of or disconnection from one's own intense

emotions, especially anger and sadness, denial of dependent longings, avoidance of separation and of facing aloneness, are reasons why someone may not be willing or able to forgive and also not willing or able to move ahead toward the connected autonomy of adulthood. This study suggests that the appropriate therapeutic task is not to encourage forgiveness per se, but rather to help the person to be able to engage in those deeply emotional processes that might, or might not, lead one, ultimately, to forgive. Identifying themes from The Forgiveness Survey may help to make us more sensitive to the range of motivations for not forgiving and also to some of the repercussions of "unforgiveness." It seems clear also that the demands for transition inherent in this developmental stage reveal fault lines that were present from early in life, e.g., insecurity of basic attachment, difficulties with separation, and intolerance for intense affect. These issues can be unobtrusive until the young person attempts to leave the nest. Paying attention to how the young person handles opportunities to engage in forgiveness processes may provide a window into that person's capacity to embrace the challenges of adulthood and also to learn something important about what might be getting in the way.

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Appendix A. The Forgiveness Survey

We all have had events or circumstances in our life for which we are unable or unwilling to forgive another person or to forgive ourselves. This exercise is designed to help you think a bit about such situations and to consider some of the benefits and also the consequences of remaining unforgiving.

Think of a situation in which you have been unable or unwilling to forgive another (this could be a person or persons, it could also be God or fate). Are you unable to forgive or unwilling?

Say something about why you can't or why you won't forgive.

What do you think would be the consequences of forgiving, both good and bad?

What are the consequences for you and the relationship of not forgiving?

What would have to change or otherwise be required for you to consider the possibility of forgiving in this situation?

Think of a situation in which you are unwilling or unable to forgive yourself. Are you unwilling or unable? Say something about why you can't or won't forgive yourself. What do you think would be the consequences of forgiving yourself, both good and bad?

What are some of the consequences of your not forgiving yourself?

What would have to change or happen in order for you to consider the possibility of forgiving yourself?

Table 1. Say something about why you can't or won't forgive the other in this situation

Themes	Examples (paraphrased)
Not forgiving allows me to hold on to	I won't forgive because I don't want to. I like to feel resentful and self-righteous and superior.
a certain power.	He caused me so much pain. I don't feel like I can ever forgive him. If I forgive, he wins.
	1 like the feeling of not forgiving. It feels kind of strong.
	If I don't forgive, then I have anger that returns when I think of him and that feels good.
Not forgiving because the other	He asks for forgiveness, but he keeps doing the same thing.
hasn't made sufficient amends.	Why should I forgive him? He hasn't changed.
	If I can't recover losses in my life, why should I forgive?
Not forgiving allows me to hold on to	I would have to accept terrible things that ruined my life.
childhood wishes.	I won't forgive my mother. She never did the things a mother should and then she chose a man over her own child. I don't want to let her off the hook—it's wrong for her to choose him over me.
Not forgiving allows me to avoid	I won't forgive because that gives me an excuse for avoiding family.
certain emotions that are especially	If I forgive her then I'd have to be sad about everything, and I don't want to be sad.
difficu1t to face.	If I forgive you, it brings up my "crime" and I don't want to bring those up.
I won't forgive because I feel	I don't want a relationship with her, so what's the point?
hopeless.	1 don't know why anyone needs forgiveness.
Not forgiving validates my feelings. I	I would be giving up my right to be mad.
have not been heard. If I forgive, the	My feelings would be invalidated or forgotten.
truth will not be acknowledged.	If I forgave him it would invalidate my pain.
I won't forgive because it would	I can't forgive my mother for her disappearance from life because she chose her work over me. If I forgave her it would be condoning her behavior.
mean condoning or excusing	I don't want to give an inch when there is an injustice or when things are really unfair.
another's had behavior.	I won't forgive them for how they treated me because I feel like it'd be giving them something good they don't deserve.
If I forgive, then I have to let go of the	As long as I keep blaming him then I have a right to stay here and just be mad. I don't have to do anything with my life.
past and move on and I'm afraid to	Maybe I kind of like it that way.
grow up.	If he doesn't do anything to make up for what he did, then why should I have to do anything?
	The person who hurt me won't change. He will always be cruel. So, if he won't change why should I?
Not forgiving is an attempt to be self-	If I forgive him and he didn't try to change then I'd be devastated.
protective.	

Table 2. Say something about why you can't or won't forgive yourself

Themes	Examples (paraphrased)
I'd rather blame myself than to see	If I didn't think it was my fault; that I could have done something to stop this, then I'd have to be mad at him. I don't want to be mad at him.
others as bad or wrong.	
What I've done is so terrible it can't	I'm so incredibly disgusted with myself for ignoring my own values that I just can't forgive myself for the things I did.
be forgiven.	I don't deserve forgiveness.
	I hated myself. I felt like everything I'd done was wrong.
	I don't deserve to forgive myself. I can't deal with my feelings properly. It's just another example of how I can't do anything right.
What I am is so terrible I don't	Why would I forgive myself for being a defective?
deserve forgiveness.	I can't forgive myself. I did things that were so cruel there must be something wrong inside of me. I feel bad, evil.
	I can't because I'm weak and hideous.
	I think because I've done it once, it's part of my character—I'm responsible for my actions. I'm unwilling and unable to forgive myself.
If I forgive myself, I'm accepting	If I forgive myself, does it mean that It's ok that I failed? I don't know.
mediocrity or accepting that I've	It would mean condoning my bad behavior.
failed.	I try to be perfect. When I screw up it's almost like I'd expect less of myself
	I would admit that I failed and I can't deal with failure.
	I'm unwilling to forgive myself for failing high school because I feel if I did it would be okay to fail at anything in my life.
	If I forgive myself, then I'm accepting that how I treated myself was okay.
Not forgiving is a way to prevent the	If I forgive, then I'll forget I use it (not forgiving) to try to motivate myself.
mistakes of the past.	
To forgive requires acknowledging	When I actually do something bad it's unmentionable. I won't face it. I suppress those things. Forgiving means I'd have to face it and admit I did those things.
what one has done wrong or one's	Forgiving myself means having compassion for myself, admitting I'm human. I can't do that because I think I should have been able to do it all.
limitations.	I can't forgive myself for letting things affect me.
	I can't forgive myself because I would have to talk to someone about it and that is terrifying because they might not like me anymore.
Not forgiving can be an attempt at	If I blame myself first, then you don't have power over me. I beat you to the punch.
self- defense.	

"Minding The Brain": A Developmental Neurobiological Model for Substance Abuse Treatment in Emerging Adults

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Prior to the turn of the 21st century, we lacked a theoretical framework for distinguishing 18 to 29 year-olds from those who are younger and older. This lack of developmental theory resulted in scant scientific research describing the mental health issues that young people in this age group face. Not surprisingly, we have very few treatment models designed to fit their mental health needs. Because substance use disorders are common in this age group, debilitating during years when much growth is expected, and an unfortunate precipitant of accidents and death, the absence of treatment models designed to fit theory and neurobiological research present an opportunity to design developmentally-sensitive models for the treatment of substance abuse disorders in 18 to 29 year-olds.

The objective of this article is to introduce The Developmental Neurobiological Model for substance abuse treatment in emerging adults. Emerging adulthood (ages 18 to 29) is a transforming neurobiological and developmental maturational window during which individuals are challenged to negotiate new social prescriptions affecting the personal foundation for separateness, identity and selfintegration, and attachment patterns. This is occurring at a time when brain maturation and its neurobiological underpinnings may be in consonance with or at odds with such growth.

This article introduces a therapeutic model for the treatment of substance abuse in emerging adults informed by developmental psychology, attachment theory and research on neurobiological maturation. The model harnesses the brain's neuroplastic capacity during this period by targeting psychotherapeutic, psychosocial and neurobiological interventions towards crucial brain networks that are in the process of developmental maturation but have been aborted and/ or distorted by substance abuse. These interventions facilitate neural network maturation in the service of fostering and reinforcing selfmastery and healthy functioning in the emerging adult.

Emerging adulthood as a distinct phase of development

Arnett (2000) introduced the term emerging adulthood to identify the developmental phase in persons ages 18-29 years. This developmental phase, according to Arnett (2004), is characterized by: 1) *identity exploration*, where one's sense of self and self-identification in major life areas such as love, work and world perspective is refined and redefined; 2) *generalized instability* in all areas of life with uncertainty of future possibilities and potential life paths; 3) *a state of in-between* adolescence and adulthood; 4) *self-focus* with a shift toward greater individual identity, personal power, self-regulation and self-agency; and 5) *possibilities and risks* with risk factors peaking and biological, psychological and sociocultural influences emerging that may be uniquely destabilizing to this age group.

Tanner's (2006) concept of *recentering* complements Arnett's theory by integrating emerging adulthood into the individual life span, and reframing the concept of transition into adulthood as a three-stage process that involves leaving adolescence, experiencing emerging adulthood, and entering young adulthood. Tanner describes an individualized developmental trajectory by which the emerging adult must: 1) separate from family and form primary attachments with peers and other adults; 2) transition from child and adolescent dependencies to engage with the larger world; 3) consolidate a resilient regard for self and identity as a capable and valued member of society; 4) launch a relatively self-sufficient career and life; and 5) develop effective, goal-directed, self-regulated life skills.

Neuroscience research has shown that normal brain maturation in emerging adults parallels the increasing complexity of these developmental and psychosocial demands. The primary, organizing purpose of brain formation and growth throughout the lifespan is to evolve an increasingly complex and higher-order representation of self and self in relation to the world (Siegel, 1999). Identity formation is a critical biological process for survival and adaptation, and emerging adulthood is a pivotal period in the maturation of attachment patterns (e.g., secure, anxious-avoidant, ambivalent, disorganized), which in turn affect self-integration and emotional regulation. The self does not develop optimally in isolation, but within the context of relationships which provide affirming, soothing and vitalizing functions as well as new learning. Siegel asserted that "human connections shape neural connections." This process can be both aborted and distorted when attachment patterns become organized around substances.

Normal emerging adult brain maturation

Healthy brain maturation is critical to the successful negotiation of the unique developmental tasks of emerging adulthood. Emerging adulthood is a period of marked growth in brain size and functioning, most notably in the prefrontal-thalamic-cerebral cortex region of the brain. The prefrontal cortex is involved in the integration of emotion and cognition, which mediate the control of thought and behavior (Gray et al., 2002). Higher-order cognitive functions include planning, decision-making, reasoning, problem solving, working memory and cognitive and behavioral inhibition (Braver & Barch, 2002; Braver & Bongiolatti, 2002). Schore (2003a) described the prefrontal cortex as the "hierarchical apex" of the limbic system, functioning as the "convergence zone" between the brain's cortex and sub-cortex. Interestingly, a lag period exists between limbic system development, where emotions originate, and prefrontal cortex development, where these emotions are managed. The changing balance between limbic-subcortical functioning and frontal lobe functioning impacts social-emotional processes, self-regulation (e.g., states of tension and motivation/vitalization), behavior (e.g., risk reward decision making and delay of gratification), attachment patterns, and homeostatic regulation of the sympathetic and parasympathetic nervous systems (Schore, 2003a, 2003b).

Advances in brain imaging have revealed that additional synaptic sprouting and pruning occurs during emerging adulthood in brain regions linked to self-regulatory functions, information processing, and logic (Keating, 2004). The speed of neural transmission is an important factor dependent on synaptic and axonal integrity. Neuron myelination provides this integrity, optimizing the connectivity, efficiency, integrative processing and executive functioning of neuronal pathways (Lenroot, 2007; Giedd, 2008). Frontal cortical and subcortical monoaminergic systems mediate motivation, reward and impulsive behavior (Chambers et al., 2003a). Development of subcortical and cortical projections, and the corpus collosum–which integrates activities of the left and right cerebral hemispheres– helps facilitate socioemotional processing and emotional regulation (Eluvathingal et al., 2006). Each of these processes is robustly in motion during emerging adulthood.

Substance abuse and the emerging adult brain

Until recently, the paucity of research elucidating the full impact of substance abuse on normal brain development in emerging adulthood has prevented the development of tailored and comprehensive models for substance abuse treatment in this population. The design of treatment models can now be guided by the input of data from risk factor analysis, epidemiology research, and studies examining the impact of substance abuse on development neurobiology.

Risk factors

Many developmental risk factors for substance abuse originate within the socio-emotional context. These include challenges, losses and deficits that may occur in emerging adulthood, including the loss of security and structure provided by family, friends, school and community contexts; threats to self-worth from the pressures of assuming responsibility for life competence; psychosocial-emotional triggers that increase personal vulnerability and associated neural activation; and the neuroplastic substrate of weakened attachment patterns during the search for a peer community or love partner, possibly leading to anxiety and issues surrounding aloneness and identification.

Neurobiological risk factors for substance abuse include genetic factors (Tsuang et al., 1996) such as behavioral disinhibition, which is modulated by prefrontal cortex dysfunction (Tarter et al., 2004; Mezzich et al., 2007, Hicks et al., 2010), and the role of serotinergic function in young adult binge drinking (Herman, 2003). Other geneticneurobiological risk factors include disorders of attachment and self-regulation originating from trauma, abuse, loss or neglect; chronic pain and medical illness; and pre-existing psychiatric or processing disorders (Khantzian & Albanese, 2009; Hicks et al., 2011). Untreated attention deficit and hyperactivity disorder (ADHD) is also associated with a significantly earlier age of onset of substance abuse (mean age 19 years with ADHD vs. 22 in non-ADHD controls) (Wilens et al., 1997).

Prevalence and age of onset

The results of national surveys conducted by the NSDUH (2008) and CDC (Hingson et al., 2005) have clarified the extent of substance abuse and its consequences in emerging adults. According to this data, 20.7% of all individuals in the U.S. aged 18-25 years currently meet the diagnostic criteria for alcohol or substance abuse or dependence.

The need for a neurodevelopmental treatment approach is underscored by evidence that substance abuse emerging in early adulthood is a consequence of risk continuity from earlier developmental stages and the unique neurologic, cognitive, and social changes that typify this age period. Neuroplasticity greatly contributes to substance abuse vulnerability in young adults (Chambers et al., 2003b), and is reflected by the median age of onset of alcohol use disorders of 20 years (Kalaydjian et al., 2009) and by the age of onset before 20 years in most adults with a substance use disorder (Chambers et al. 2003b).

Impact of substance use disorders on the maturing brain

A substantial body of evidence has demonstrated the structural and functional vulnerability of the maturing brain to the damaging effects of alcohol and other drug abuse. Adolescent substance abuse has been found to limit brain growth (Volkow et al., 2008) and differentiation (De Bellis et al., 2005), with decreases in prefrontal cortex, grey matter, and hippocampal volume from alcohol abuse (De Bellis et al., 2005) and cannabis abuse (Nagel, et al., 2005). Also disrupted is the normal development of brain regions that mediate cognitive, conceptual, organizational and problem-solving skills, including the executive functions of attention, decision-making, planning, and conceptualization (Thorberg & Lyvers, 2006; Crean et al., 2011).

Normal development of reward-risk decision-making is impaired, resulting in decision-making deficits and impulsivity (Hanson et al. 2008). Adolescent alcohol abuse alters the mechanisms that regulate hypothalamic-pituitary-adrenal (HPA) axis activity, resulting in persistent dysregulation in HPA biorhythm and stress response, dysphoria, impairment in emotional engagement and feedback networks as well as judgment and resultant behavior, and potentially an increased risk of suicidal behavior (Sher, 2007).

The healthy functioning of motivational and attachment systems is undermined by substance use in adolescence. Motivational systems become organized around fear and avoidance of substance withdrawal, cravings, and distress avoidance, and a corresponding dominance occurs in reward systems over cortical regions in shaping behavior (Volkow et al., 2008). With respect to attachment, the drug of choice effectively replaces human relationships as the context of addressing vital personal needs essential for growth developmentally. Treatment models must address this derailment of attachment both by active interference with the attachment to substances and by providing alternative human responsiveness to individual emotional needs.

The negative impact of substance use on the maturing brain is compounded by early use onset. Heavy cannabis use during adolescence is associated with a significantly earlier age of onset (2.7+ years) of psychotic illness than in non-cannabis abusing adolescents (Gonzalez-Pinto et al., 2008; Large, 2011), and a 4-fold risk in the development of affective disorder characterized by dysphoria, anhedonia, and suicidal ideation (Bovasso, 2001). Moreover, the manifestations of the negative impact of substance use on the maturing brain varies across individuals, as the impact is influenced by multiple factors including genetic and environmental factors, opportunity for symptom expression, personality characteristics, and the presence of psychopathology (Hicks et al., 2011; van Beek et al., 2011; Brown et al., 2008; Schulenberg et al., 2001).

The need for a developmental neurobiology approach

In recent years, scientific advances have greatly improved the understanding and treatment of psychiatric and substance use disorders. These include: the converging influences of genetic, environmental, biological, and psychosocial factors on brain function, structure, and vulnerability; the extent that environmental and behavioral factors influence brain neuroplasticity well into adulthood; and that use of psychotropic drugs, psychotherapy and psychosocial services with greater specificity for neurodevelopmental impairments associated with substance dependence and/or psychopathology can improve patient outcome.

Although science has dramatically advanced our knowledge of

causation and treatment, studies have documented the extent of departure from evidence- and scientific-based practices in the treatment of these conditions (Watkins et al., 2001). A longitudinal study of 1,088 youths in residential or outpatient treatment for drug abuse showed that although 67% reported having severe mental health problems upon admission, only 24% received mental health services within 90 days of admission (Jaycox et al., 2003). Another example comes from a landmark study of individuals with alcohol dependence, who received care consistent with scientific knowledge only 10.5 percent of the time (McGlynn et al., 2003).

In addition, programs based on the asylum concept (go away and return cured) of rehabilitation treatment fall short for emerging adults, perhaps most likely due to the fact that such programs do not fully engage the emergent adult's experience-dependent brain systems. While such programs are often necessary and even life-saving for the initial phase of recovery, such programs do not take into account the distinct developmental needs and tasks facing emerging adults. Programs that expect young people to go away from their homes to receive treatment are likely to underestimate the need to engage the implicit, dissociated attachment and affect-regulatory systems, or self-structure and functions, at the deepest experiential level necessary to rebuild and re-network healthy living and loving patterns required for enduring recovery. The complexity of problems faced by emerging adults with substance use disorders coupled with the paucity of appropriate therapeutic options prompted the conceptualization of The Developmental Neurobiology Model.

Guiding principles

Neuroscience of emerging adult brain development guides the conceptual design of The Developmental Neurobiological Model of treatment for substance abuse in emerging adults. Three principles guide the treatment design. Each guiding principle ascribes therapeutic success to the provision of real-life opportunities for healthy attachment, emotional immersion, and neurosynaptic activation that are required for enduring change in self-organization, affect regulation and adaptive functioning.

The first guiding principle is that it is necessary to 'quiet the limbic system' (van der Kolk et al., 2005) to help emerging adults achieve a greater sense of safety. Quieting techniques facilitate attachments by promoting self-soothing and regulation. This is especially relevant when substance abuse is associated with trauma, anxiety disorders, and emotional/self-inhibition.

The second guiding principle is the belief that it is essential to support the psychoneurobiological development of a coherent self, an organized self, and a self-regulated self (Schore, 2008; Siegel, 1999; Gedo & Goldberg, 1973). This principle puts an emphasis on the processes of self-informed agency, self-directed empowerment, and an adaptive balance of vulnerability, collaboration, and boundaries for self-protection. This second pillar emphasizes the self-actualizing tendencies of the developing individual.

The third and last precept is drawn from *neurocognitive modes of decision-making* (Noel et al., 2006); therapeutic experiences thatoccur in real-time within meaningful relationships are essential for achieving change. Such experiences exercise and grow the networking between the limbic system and pre-frontal cortex. Using mindfulness techniques such as 'Reaction, Reflection, and Relation' neurocognitive growth occurs and, in turn, facilitates the development of mindfulness, cognitive and executive functions, and competent self-governance.

Intervention components

The Developmental Neurobiological Model for substance abuse treatment in emerging adults is an integrative model, one that uses the guiding principles to make adaptations to and adoptions from currently available treatment methods. Bringing together and molding multiple treatment methods into a method that works for emerging adults, honors the distinctiveness of the age period and the unique needs of this age group. Specifically, aspects of six well-established practices are components of the Developmental Neurobiological Model: abstinence goals, 12-step programs, psychiatric treatment, in-depth psychotherapy, executive function and role competence therapy, and mind-body integration work.

Abstinence

Abstinence from alcohol and/or drug use opens neural pathways necessary for the requisite emotional and cognitive processing in recovery, and resets the reward motivational system by improving self-efficacy – a factor highly correlated with successful treatment outcome. Abstinence is crucial in that it disrupts the primary attachment to one's drug of choice. Supportive medical and interpersonal treatment of withdrawal and cravings facilitates abstinence and resets the reward system. Intriguing evidence also suggests a period of abstinence following excessive alcohol exposure may result in a burst of growth of new nerve cells (Wobrock et al., 2009).

The 12-Step Recovery Model

Twelve-step theory hypothesizes that changes in specific cognitions (e.g., powerlessness over alcohol/drugs) and behaviors, including adoption of disease model beliefs and involvement in self-help programs, lead to symptom reduction (Morgenstern et al. 2003). Alcoholics Anonymous (AA) is a peer-based fellowship that provides mutual self-help and abstinence support through a network of informal community gatherings (Gunzerath et al. 2011).

The 12-Step model of recovery offers a structured platform to facilitate harm reduction and strengthen self-efficacy, empowerment, and governance in the connection to others. Limbic-cortical danger systems are mollified by reassurance and ever-present social safe places. Distressing emotions such as shame and loneliness are relieved through group membership; sponsors and members provide the organizing relationships to replace substance use at times of distress; self-worth, hope, and motivation are supported through acceptance; and the 12-step model confronts denial and rationalization while affirming the difficulties of sobriety.

Psychiatry

A considerable body of literature has documented the association between substance use disorders and a range of psychiatric conditions (Swendsen et al. 2010). Effective psychiatric treatment of psychopathology with psychotropic medication quiets the limbic system through reducing distress, supporting abstinence, reducing cravings and resetting brain reward systems. Patients who abuse multiple substances or have other co-occurring psychopathology are more likely to experience difficulties with treatment/medication adherence. Psychiatrists must also supervise the extended withdrawal from prescribed medications that may promote relapse, and help reframe substance abuse to the client as based on brain neurobiology, and thereby reducing self-criticism, shame, and a sense of failure.

Psychotherapy

A collaborative alliance between therapist and client has been established as the single best predictor of treatment outcome, especially in emerging adults. Therapeutic attachment experiences are transformed into internal regulatory abilities to create an adult socio-emotional framework better able to cope with the demands of life. Seen through the lens of developmental neurobiology, the therapeutic alliance must be attuned to issues related to safety and self-regulation, mirroring, validation, and visualization (Schore et al., 2008). Schore describes matching the clinician's right-brain attention to the patient's affective-arousal state, because immersion in the latter inhibits dissociation. This "limbic dialogue" utilizes self-disclosure and emphasizes the power of the present moment, within and outside of the therapeutic relationship. Therapy specifically targets the maturing brain systems and processes believed to mediate protective factors, such as emotional regulation and motivational systems essential to recovery from trauma, abuse and neglect thereby enhancing identity integration and coherence with resultant negative risk correlation (Schwartz, 2010).

Executive functioning and role competence therapy

Many of the cognitive and behavioral changes taking place during emerging adulthood can be understood from the perspective of increased executive functioning, a term encompassing a broad array of abilities that include attention, response inhibition, regulation of emotion, organization and long-range planning (Giedd, 2008). The use of fMRI imaging has helped link poor executive functioning with relapse, underscoring the importance in addressing executive functioning deficits (Paulus, 2005). Support for executive functioning is essential, not auxiliary, including within in-depth psychotherapy which opens the brain's neurobiology through attunement and provides optimal conditions for new cognitive learning. A useful strategy which addresses functional impairment and improves skills is Brief Action Planning (BAP). With BAP, the patient identifies an interest and the next step toward goal attainment to improve confidence and commitment. Action analysis is used in problem solving and strategic planning with an eye towards risk-reward recognition and consequences, resistance to negative peer influence and identification with the sober community. Motivational interviewing is also useful to assess and foster readiness for change, autonomy, and self-efficacy.

Mind-body integration work

For so many emerging adult substance abusers, especially those with trauma histories, the body is holding the unarticulated tensions of their emotional life. There is an urgency to relieve intolerable physical distress which is the engine of the "quick fix" of substance use. Approaches used to involve the body, connecting emotional pathways integrating the body-self include: techniques of distress tolerance through the use of dialectical behavioral therapy, exercise and yoga; meditation and mindfulness practices; heartmath and neurofeedback; practicing gratitude, compassion and forgiveness; and harm reduction through abstinence.

Resistance to recovery: stage-specific factors

Emerging adults present additional resistances to recovery based upon their developmental position. The emerging adult brain is reorganizing as it responds to exploration, novel experiences, and stimulation. Treatment and real life must compete with the experiences provided by substances in these domains. The maturational imperative for autonomy, self-empowerment and the associated illusion of invulnerability must be counterbalanced with an approach that defines self-directed strength as knowing one's limits and acknowledging risks, exposing vulnerability and the need for others, and accepting the legitimate expectations of authority.

Psychotherapy is to be directed at demonstrating how attachment to substances and dishonest, secretive interactions actually maintain powerlessness and dependence on unusable attachments. Dishonesty and secretiveness often provide illusory experiences of separateness, empowerment and autonomy in substance abusing emerging adults. Dishonesty and secrets stall individuation as, by definition, they keep hidden the authentic self. The role of shame and resulting avoidance and deception in substance abusing emerging adults cannot be overestimated, as many have been using substances during critical developmental years of adolescence and are truly impaired in many social, emotional and executive dimensions. Shame is muted over time by acceptance without judgment and offering alternative empathically derived understandings in individual settings, among family, and within peer and recovery communities.

The normative developmental narcissism of emerging adulthood presents challenges both in terms of acknowledging that one's life is connected to others and to a transcendent dimension of life. This challenge can be approached through involvement in the recovery community where the relational impact of substance use is ever present and an emphasis is placed on the paradox of self-empowerment and meaning through humility, gratitude and acceptance.

Conclusion

The Developmental Neurobiology Model offers an integrated treatment paradigm for treating emerging adults ages 18 to 29 with substance use disorders. This model is organized around the core principles of quieting the limbic system, promoting self-integration and coherence, and promoting executive function and competence. Interventions are targeted at providing a context which will interfere with the attachment to substances and promote human attachments allowing the individual and their brain to get back on track in maturation. Additional interventions promote development in those specific brain networks which affect self-integration, self-regulation and cognitive decision-making.

This treatment model is strongly grounded in and guided by the latest research findings of the sociocultural, genetic, and neurobiological factors that heighten substance abuse vulnerability, and the extent that substance abuse further compromises antecedent brain dysfunction and creates abnormal "rewiring" in neuron networks involved in motivation, reward, and executive function in the maturing brain. The Developmental Neurobiology Model informs a uniquely comprehensive approach to address the service of young people making the critical transition to adulthood.



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LITERATURE REVIEW:

Building a foundation of knowledge of emerging adult mental health "Development" as a component of emerging adult mental health

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At each life stage there are a number of ways development and mental health are related. Identifying emerging adulthood (ages 18 to 29) as a distinct stage of life allows us to formulate questions in such a way that we get closer to knowing, specifically: *how might development and mental health be related during the years "in between" adolescence and young adulthood?* Emerging adult mental health and functioning are influenced not only by an individual's current and past mental health issues, but also by an emerging adult's developmental history and current developmental abilities. Specifically, studies that help us compare emerging adults to younger and older age groups reveal the specific synergism between development and mental health during this critical life stage.

The theme of this LITERATURE REVIEW is work that focuses on the dynamic interplay between development and mental health in a way that helps us understand more about emerging adult adjustment and well-being. Included in this review are studies that examine the extent to which a developmental past (i.e., ego development, personality disorders) determines mental health and functioning in emerging adulthood; moreover, some studies ask-does emerging adult development influence well-being and functioning? Other studies investigate whether active involvement in determining one's own developmental path and course of well-being is affected by emerging adult-era behaviors and beliefs. Still other research is included in the literature review because it educates us about the development of strengths and resources that serve as protective factors and risks that present as threats to well-being in emerging adulthood.

Bauer, J. J. & McAdams, D. P. (2010).

Eudaimonic growth: Narrative growth goals predict increases in ego development and subjective well-being three years later. *Developmental Psychology*, 46(4), 761-772.

Leaving adolescence, emerging adults depart from contexts that naturally scaffold their development (e.g., family, school). Setting goals is one behavior that may scaffold development post-adolescence; goal-setting may also predict increases in well-being.

Bauer and McAdams (2010) investigated trajectories of ego development and subjective well-being to understand the normative course of eudaimonic growth in a sample of college freshman and seniors from Northwestern University re-interviewed three years later. Eudaimonia is human flourishing—a combination of feeling good about oneself and exhibiting maturity, operationalized as subjective well-being and ego development, respectively. Consistent with previous studies, findings revealed a normative increase in ego development. No increase in subjective well-being was demonstrated. This study also examined whether students' goals related to increases in ego development and well-being. The types of goals students set for themselves were related to changes in ego development, but not subjective well-being. Participants who planned for a life of conceptual exploration and learning were more likely to show increases in ego development. These agentic, intellectual growth goals did not predict increases in well-being. However, communal socioemotional-growth goals did predict increases in well-being. Thus, there appears to be two separate dimensions to eudaimonic growth which map onto two different dimensions of change across emerging adulthood. Specifically, the pursuit of educational and occupational goals associated with learning appear to be related to psychosocial maturation, whereas interpersonal goals focused on the pursuit of connectedness appear to be associated with feeling good about oneself.

Beyers, W. & Seiffge-Krenke, I. (2010).

Does identity precede intimacy? Testing Erikson's theory on romantic development in emerging adults of the 21st century. *Journal of Adolescent Research*, 25(3), 387-415.

According to Erik Erikson, the ego develops at each stage as a function of prior development and as a function of the ability to resolve a stage-specific life crises. Eriksonian theory predicts that higher levels of ego development, and resolution of prior ego tasks in adolescence, should both predict a greater likelihood that ego development occurs in later stages of development. Drawing on this model, resolution of identity development in adolescence should set the stage for the achievement of intimacy in young adulthood. Beyers and Seiffge-Krenke examined whether ego development in mid-adolescence predicted ego development in the mid-twenties. Using data collected from adolescents at age 15 who were then followed to age 25, the authors found a direct association between ego development through age 15 and intimacy at age 25. This significant pathway suggests that ego development in the first decade of life through mid-adolescence contributed to a likelihood that ego development? Relational identity (but not global identity) fully accounted for the relationship between ego development in adolescence and intimacy in emerging adulthood. Broad psychosocial development through adolescence and then domain-specific identity development in adolescence is one pathway associated with achieving intimacy in young adulthood.

McLaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., Kessler, R. C. (2010).

Risk and resilience in coping with daily stress in adulthood: The role of age, self-concept incoherence, and personal control. *Developmental Psychology*, *46*(5), 1132-1146.

Accumulating experiences and organizing a sense of self are key features of gaining a sense of control over one's own life. Because emerging adulthood is a critical stage for identity development, the extent to which emerging adults succeed in identity development and constructing a sense of personal control should predict better more optimal adjustment. Diehl and Hay explored whether self-concept incoherence and personal control are related to the ability to manage stress comparing emerging (mean age = 26), middle-aged (mean age = 52), and older adults (mean age = 71). Reports of mean daily stress were similar across age groups; however, emerging adults reported higher levels of self-concept incoherence, lower daily control, and greater negative affect. Over 30 days of diary reports, compared to middle-aged and older adults, emerging adults with higher levels of self-concept incoherence experienced greater emotional instability and higher than average negative affect. These findings suggest that as individuals get older, they are likely to experience greater coherence in their self-concept and that this will be related to a sense of control over one's life. Among emerging adults, however, self-coherence and personal control are still developing and, in the context of daily stress, can be associated with emotional instability and negative emotions.

Heatherton, T. F. (2011).

Neuroscience of self and self-regulation. Annual Review of Psychology, 62, 363-390.

The demands of emerging adulthood encourage individuals to take charge of their own lives and to make choices and decisions that establish themselves as adults via the commitments they take to roles and responsibilities. Mature self-regulation allows an individual to direct his or her behaviors and resources to meet goals. Self-regulation has its roots in the earliest stages of development, and is shaped by experiences through emerging adulthood before serving as a key factor predicting adjustment in the emerging adult years. Self-regulation is key to successful a djustment in emerging adulthood, key to recentering oneself as the director of one's own adult development. This review is dedicated to exploring the normative pathway of self-regulation development across the life span. The review does not focus on emerging adults specifically (nor does the article mention emerging adulthood explicitly with respect to self and self-regulation), rather this is an in-depth review of neuroscienific evidence that explains normative pathways of self-regulation requires four components: awareness of one's own behavior; understanding of how others are perceiving their behavior, ability to detect threat; ability to resolve discrepancies between self-knowledge and social expectations (or norms).

Findings from the Australian Temperament Project

O'Connor, M., Sanson, A., Hawkin, M. T., Letcher, P., & Frydenberg, E. (2011). Differentiating three conceptualizations of the relationship between positive development and psychopathology during the transition to adulthood. *Journal of Adolescence*, 34(3), 475-484.

O'Connor, M., Sanson, A., Hawkins, M. T., Letcher, P., Toumbourou, J. W., Smart, D., Vassallo, S., & Olsson, C. A. (2011). Predictors of positive development in emerging adulthood. *Journal of Youth and Adolescence*, 40(7), 860-874.

Hawkins, M. T., Letcher, P., Sanson, A., O'Connor, M., Toumbourou, J. W., & Olsson, C. (2011). Stability and change in positive development during young adulthood. Journal of Youth and Adolescence, PMID: 21293913

A lack of psychopathology is not necessarily a measure of the "presence" of good mental health, positive adjustment, or good development. Yet often, in mental health research, a lack of symptoms or symptoms in the non-clinical range is considered the benchmark for mental health. To date, we do not have a framework for understanding what is mental health in emerging adulthood. O'Connor and colleagues used structural equation modeling and a sample of over 1,000 Australian children followed through emerging adulthood to determine a model of positive development revealing five dimensions: (1) civic action and engagement, (2) trust and tolerance of others, (3) trust in authority and organizations, (4) social competence, and (5) life satisfaction. The study revealed a lack of association between positive development and psychopathology. The lack of correspondence suggests that the absence of psychopathology is not an indicator of positive development and also that positive development and psychopathology are as likely to exist in the same emerging adult as not. Childhood and adolescence-era predictors revealed a number of factors that increased the likelihood of positive development in emerging adulthood: stronger family and peer relationships, school adjustment, family SES, and emotional control. Changes in positive development from age 20 to the mid-twenties revealed more change than stability with respect to positive development. Four groups were identified: stable high (34.5%), stable very low (11.6%), low to average, increasing (30.4%), and average, decreasing (23.5%). Thus, there is significant instability with respect to positive development in emerging adulthood suggesting that short intervals of assessment may be necessary to capture variation.

Skodol, A. W. E., Johnson, J. G., Cohen, P., Sneed, J. R., & Crawford, T. N. (2007).

Personality disorder and impaired functioning from adolescence to adulthood. The British Journal of Psychiatry, 190, 415-420.

By the criteria established in the DSM-IV-TR, personality disorders are first diagnosed in emerging adulthood. Understanding the roots of personality disorder may offer insight into one pathway by which developmental history can complicate the treatment of psychiatric disorders in emerging adulthood. Skodol and colleagues focus on the course (rather than point-in-time diagnosis) of personality disorder from adolescence through emerging adulthood to better understand how "deficits in the development of affect regulation, conscience, impulse control or identity

consolidation" may impact functioning into the fourth decade of life. Examining the developmental histories of 658 participants who were interviewed at ages 14, 16, 22, and 33, the authors reported that personality disorders commonly occur with Axis I disorders and that rates of Axis I disorders at age 33 varied between those with: no personality disorder, 23.1%; personality disorder in remission (PD at 22, but not at 33), 30.3%; adult onset personality disorder, 57.9% (no PD at 22; PD at 33); and persistent personality disorder, 70.3%. With respect to global functioning (GAF scores), those with personality disorders fared the worst and those with adult-onset personality disorders also scored in the clinically-impaired range. In contrast, those with personality disorders in remission reported only mild (non-clinical) impairment. Moreover, these findings suggested that there is a remission pathway for personality disorders in emerging adulthood; of those who met criteria for psychiatric disorder at age 22, only 25.7% retained a personality disorder at age 33.

Robinson, O. & Smith, J. (2010).

The stormy search for self in early adulthood: Developmental crisis and the dissolution of dysfunctional personae. The Humanistic Psychologist, 38(2), 120-145.

What happens when identity is not resolved in emerging adulthood? Robinson and Smith wanted to know; so they asked. Six individuals provided in-depth interviews about respective crises experienced between ages 25 and 40. This work builds on Robinson's earlier work in which he probed for narratives of developmental identity crises. From this earlier work, Robinson concluded that identity crises follow a predictable 4-phase pattern from phase 1: feeling locked in or constricted by life's roles (i.e., either a career or relationship), through phase 2: a traumatic separation to distance oneself, into phase 3: exploration and experimentation, ending after phase 4: resolution with new commitments. In The stormy search for self in early adulthood, the developmental identity crisis is understood in the context of life span identity development in that a pre-crisis conformist identity is the baseline for the developmental crisis due to dissonance between inner, authentic self and outer, false self. Robinson and Smith take a look at the potential for identity crisis to occur between ages 25 and 40, what happens when roles and responsibilities define an individual in emerging adulthood with an under-developed personal identity.

Shulman, S. & Nurmi, J. E. (2010).

Special Issue: The role of goals in navigating individual lives during emerging adulthood. New Directions for Child and Adolescent Development, 130, 1-110.

The work of Nurmi and colleagues has identified goal-setting and goal-attainment with well-being in emerging adulthood. Helping emerging adults identify goals and adopt an optimistic future-orientation is an implicit, if not explicit goal of therapies with emerging adults with mental health problems. In this Special Issue of New Directions for Child Development, Shulman and Nurmi author an introduction and then present seven articles that further articulate associations between self-development, goal setting, goal attainment, and well-being in emerging adulthood. The goal-setting perspective is a way to understand a process underlying individual development during emerging adulthood. Foremost, this framework recognizes the fact that development is contextual. First, emerging adults assess the normative expectations typical for the society they live in; second, young people are active agents in constructing their pathways; and third, as people are setting goals and constructing plans, they take various positions and take on roles which, in turn, affect goal setting behaviors.





Author Bios

Jeffrey Jensen Arnett, PhD

Jeffrey Jensen Arnett, PhD, is a Research Professor in the Department of Psychology at Clark University in Worcester, Massa-chusetts. He coined the term "emerging adulthood," and he is the author of Emerging Adulthood: The Winding Road from the Late Teens through the Twenties (Oxford University Press), along with numerous scholarly articles in this area. He is also the author of the textbook Adolescence and Emerging Adulthood: A Cultural Approach (Prentice Hall). In 2005, he was a Fulbright Scholar at the University of Copenhagen, Denmark. Since 2002 he has been the Editor of the Journal of Adolescent Research. Dr. Arnett is the Chair and Founding President of the Society for the Study of Emerging Adulthood.

David Daskovsky, PhD

Senior Staff Psychologist; Yellowbrick

Dr. Daskovsky earned his PhD in Clinical Psychology from Northwestern University's School of Medicine in 1988. He completed his internship at Northwestern Memorial Hospital's Institute of Psychiatry and also served as Chief Intern there in 1987-8. For the next nine years, Dr. Daskovsky provided individual and group psychotherapy as a staff member of NMH's Extended Partial Hospitalization Program, which offered intensive, long term treatment for adults with severe mental illnesses including many whohad suffered chronic trauma. In 1998, he became Director of Psycho-Social Rehabilitation at Trilogy, Inc. and in 2003 became thatagency's Clinical Director, a position he held until coming to Yellowbrick in 2009. While at Trilogy, Dr. Daskovsky was instrumentalin the development of a highly respected practicum training program and has long been committed to teaching graduate students about the treatment of mental illness in community settings. He is an Assistant Professor in the Division of Psychology at Northwestern's Feinberg School of Medicine.

Dr. Daskovsky is the father of three emerging adults.

David Hamilton, MD

Associate Medical Director; Yellowbrick

David Hamilton, MD joins Yellowbrick following receipt of his medical degree at the University of Southern California Keck Schoolof Medicine and subsequent residency training at the University of Virginia Department of Psychiatry and Neurobehavioral SciencesHe pursued further specialty training at the University of Virginia by completing a Forensic Psychiatry Fellowship during which timehe also served as a Visiting Assistant Professor. Dr. Hamilton is certified by the American Board of Psychiatry and Neurology. Healso earned a Master of Arts in Philosophy degree from the University of Iowa prior to his entering medical school. Dr. Hamilton brings a rich, diverse and disciplined educational and training background to the challenges inherent in applying current knowledge in neuroscience to the clinical needs of emerging adults and their families. Within his role at Yellowbrick, Dr. Hamilton is instrumental in applying current research and state of the art neuroscience for refining techniques and innovative, integrative approaches towards both diagnostic assessment and effective treatments.

Jennifer L. Tanner, PhD

Jennifer L. Tanner, PhD is a Visiting Assistant Research Professor at The Institute for Health, Health Care Policy and Aging Research at Rutgers University in New Brunswick, NJ. Dr. Tanner is an applied developmental psychologist. Using developmental theory and methods, her research is focused on clarifying the pathways to individual and family health, mental health, and life spanadaptation. Prior to her fellowship years (National Institute for Mental Health, Ruth L. Kirschstein National Research Service Award(2006-2008)), she was Research Assistant Professor in the School of Social Work at Simmons College in Boston, MA. Her work has been published in peer-reviewed journals, books, and handbooks and presented in professional forums. Dr. Tanner is Co-Chair of the Society for Research on Emerging Adulthood. She is on the Yellowbrick Board of Advisors, co-editor of The Yellowbrick Journal and serves on the Editorial Boards of The Journal of Adolescent Research, The Journal of Youth and Adolescence, and The Journal of Adult Development.

Jesse Viner, MD

Founder & Executive Medical Director; Yellowbrick

Dr. Jesse Viner created Yellowbrick in recognition of the specialized needs of emerging adults and their families, and the necessity for a treatment system that addressed the unique challenges of the transition into adulthood. A recognized expert in the treatment of eating disorders, difficulties resulting from trauma and abuse, and bipolar disorder, Dr. Viner has three decades of experience applying the knowledge of psychiatry and psychoanalysis to the challenge of creating meaningful and pragmatically effective treatment programs.

Following his education at Yale, The Chicago Medical School, Northwestern University Medical School Psychiatry Residency and The Chicago Institute for Psychoanalysis, Dr. Viner has served as Director of Adult Psychiatry Inpatient Services for Northwestern University Medical School; Medical Director of Four Winds Chicago, a private psychiatric healthcare system; and Director of University Behavioral Health, a group practice on the North Shore of Chicago. He is on the faculty of the Chicago Institute for Psychoanalysis, an Assistant Professor of Psychiatry at Northwestern Feinberg School of Medicine and Rush Medical College, and on faculty at The Family Institute at Northwestern University. Dr. Viner is a Distinguished Fellow of the American Psychiatric Association.

Dr. Jesse Viner is the father of three emerging adult daughters.

Laura Viner, PhD

Director, Emerging Adult Assessment Center and Director, Research and Training; Yellowbrick

Dr. Laura Viner is a Clinical Psychologist and tenured Associate Professor of Psychiatry and Behavioral Sciences at Northwestern University Medical School. For over 25 years, Dr. Viner has done clinical research, teaching of Psychology and Psychiatry students, and assessment and clinical treatment of individuals, families and groups with adults, adolescents, and children. She has published over 50 scholarly articles in scientific journals and books, including her recent popular psychology book on psychoneuroimmunology, The Joy Formula for Health and Beauty. Dr. Viner also gives scientific presentations to professional audiences around the country.

Prior to Yellowbrick, Dr. Viner was Senior Staff Psychologist at The Family Institute at Northwestern University where she also developed and directed a program for inner city children and their families to prevent violence and antisocial behavior. Earlier at Northwestern, Dr. Viner was Director of the Outpatient Eating Disorders Program.

Dr. Viner is a mother of one emerging adult son, one adolescent son, and a pre-teenage daughter.





Issue III

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