Research Article

Identity and Autobiographical Narratives: Towards an integrated concept of personal history in psychiatry

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ABSTRACT

A converging, multidisciplinary literature on the significance of autobiography, personal history and the self in psychiatry and neuroscience has emerged. With the growing emphasis on “individualized medicine,” the authors are making a case for the in-depth study of personal narratives and individual scripts, as research subjects of interest, towards an “individualized” psychiatric treatment approach. The authors are proposing the term Identity Narrative (IdN) to define an emotional and cognitive framework that serves as an implicit memory scaffolding for the gradual development of complex autobiographical narratives. Along with the autobiographical narrative, IdN constitutes autobiographical memory, which continues to mold itself throughout life and defines an individual’s identity and the self. A person’s IdN is built of implicit scripts and key points which draw content from external narratives (human history) and personal experiences. IdN parallels lifelong growth and development; it is of special importance in psychological treatment and healing; and it is embedded in a larger biological substrate of social affiliations. The authors propose the “implicit re-routing hypothesis of IdN” by which life events of: (a) sudden insight and awareness; (b) high emotional valence and (c) high frequency of repetition; (d) prolonged duration are likely to become re-routed into a person’s implicit memory and thus become part of the IdN. Clinical implications are discussed.

Keywords: identity narrative, autobiographical memory, implicit memory, implicit scripts, key points, default mode, communication (language) beltway, biology of social affiliations, implicit re-routing hypothesis.

Introduction

An ever-increasing emphasis on individualized medicine over the past decades has been reflected in a rising interest in autobiographical memory and personal history in psychiatry. Recent pieces published in The New York Times[1] and The New Yorker [2] have brought public attention to the significance of personal narratives, both in an individual’s identity and in promoting resiliency, factors of high priority for psychiatry. In this paper we are reviewing the multidisciplinary literature on autobiography, its relationship to implicit memory, and the neurobiology of self. We will then discuss the impact on the field of psychiatry.

Human history starts with telling of stories. In some languages the word for the discipline of history and the word for story are interchangeable [“Geschichte” (Ger.), “L’histoire” (Fr.)]. Tales, fables, creation myths and cosmogonic myths are present in all cultures to provide a narrative for the origin of the world [3]. On an individual level, the telling of stories is among the first activities between mother and child. The first stories, together with the first experiences in life, create proto-narratives-- the beginning of a life story. From then on, humans develop an elaborate autobiography, a personal narrative that contributes to the emergence of the Self. In this contribution, we refer to the term Self as used in the current neuroscience literature [4-7].
The term Identity Narrative (IdN) is derived from various sources. In Sanskrit, “gna” means knowledge, and “gnarus” and “narrare” in Latin mean “to tell” [8]. Humans remember their own past in story form. Narratives can be “external,” the stories about people and places in society (which is history), and “internal,” personal experiences, which make up a person’s autobiographical memory. The meaning of identity here is derived from contemporary philosophical writings, linked to “appearance” and “being” of an object [9,10].

There are degrees, hues of appearances given by components of an identity or the “atoms of appearing.” In the same vein, we are using the term “implicit scripts” of memory as component units of IdN.

**The biological roots of the self as a holder of Narrative Functions**

Historically, William James [13] intuited the “total self” as “duplex” in nature, with one characteristic being awareness (“knower”) and the other, experience (“known”). Extensive psychoanalytical contributions over the past 100 years have covered the relationship between the self, personal history, and the surrounding world. Such concepts are also centered around the idea of a personal story, a narrative governing the cohesiveness of the self. Some examples include: Freud’s highly personalized “secondary elaborations” [14], which become encoded as memory; “self-representation” as an experiential memory that defines a person’s identity as described by Hartmann [15]; ego defenses that have a role in adaptation to the external world [16]; Winnicott’s “average expectable environment,” a good enough environment [17]; Stern’s Representations of Interactions that have been Generalized (RIGS) [18]; Bowlby’s internal working model [19-21]; the vicarious incorporation of a close person’s experiences into one’s autobiographical self referred-to as “the living in history effect” [22]; and a person’s narrative of the self and an implicit narrative as differentiated by Meares [23], which is automatic and creates an “invariant organizing principle” of a person [24].

More recently, both animal studies and human psychology contributions have pointed to the bonding and social significance of the acquisition of an internal organization [5,6,19-21,25-27]. From an evolutionary point of view, Damasio [28] classified the self into three major levels: (A) The proto-self, which represents the neural aspects of mental life, localized mainly in the brain stem. In the animal literature, Panksepp [5,6] has previously described the proto-self to constitute the origins of “drives.” Damasio refers to the proto-self as the embodiment of the self. (B) The core self, which includes elaborate feelings and emotional reactions, engages with the outside world or its objects. It is also charged with the processing of emotions [7]. (C) The autobiographical self includes the encoding of events in a person’s life in a specific sequence. The individual sequencing of autobiographical memory provides time-specific relevance to memory [29,30].

Developmentally, life lessons (a form of narratives) are viewed as incorporated basic assumptions, moral values [31,32] and patterns of logical thinking acquired in a stepwise manner [33,34]. A large body of literature to include developmental, attachment and memory studies has pointed to the significance of personal narratives and autobiographical memory in the development of internal organization and personal identity [5,6,18,19,22,25,30,33-40]. While the review of these contributions remains beyond the scope of this paper, of special interest are recent neuroscience reports linking self and self-awareness to midline brain structures [5,6,41-50]. Other contributions have pointed to the same anatomical areas as overlapping with the subcortical-cortical midline structures (SCMS) described in theoretical contributions [4,6], and the neuroimaging-derived concept of the default system [51]. The latter refers to the activation of midline brain structures during a state of relatively stable mental inactivity, and has been more recently linked to to psychopathology of personality disorders [52].

**The Neuroscience of Narratives as Memory**

In order to understand how narratives are encoded, it is important to recapitulate some basics about memory. Brain projection of activity is contingent upon the degree of engagement in a task. This is the basis of representational plasticity and map expansion [53,54]. Narratives exist thanks to memory formation of meaningful sequences of events and the ability to memorize previous experiences. Explicit memories are pieces of information that are readily available for voluntary recall. Implicit memories are present, but an individual has limited awareness of them. Explicit and implicit memories were, in general, believed to function in a partitioned manner. A clear example is the famous patient HM, who underwent a bilateral medial temporal lobe ablation in the 1950s with permanent anterograde amnesia. Over time, implicit, new memory acquisitions still continued to occur [55]. Contrary to previous assumptions, a body of literature suggests that there is in fact continuous exchange between explicit and implicit learning [56,57]. *Explicit* memories include the subtypes of episodic (historical) and semantic (facts) memories. Autobiographical memory is a form of historical memory. *Implicit* memory includes automatic/procedural memory often used in specific skills and priming, the skewing of response upon supra and subliminal recognition. Implicit memories influence episodic memory and the decision-making process [58-60].

Among the many stages in the formation of explicit memories, two processes, consolidation and reconsolidation, have a particular role in the processing and reuse of previous experiences. By means of consolidation of memories, retained information is transformed into long-term memory. This process requires protein synthesis [61,62]. Other chemical processes are involved at the synaptic level as well. For instance, repetition of certain electrical activities at the synaptic level leads to long-term potentiation (LTP), a process accompanied by protein synthesis [63]. Reconsolidation is another memory mechanism by which each memory, when recalled, is reshaped and modified according to new informational input from the time of recollection [65]. Thus, memory of past events can be modified, re-actualized and distorted based on current (contemporary,
in time) experiences. This function of memory is empirically familiar to psychotherapists. Both consolidation of secondary elaboration and deconstruction of previously held beliefs may occur by means of reconsolidation. Furthermore, reconsolidation may be the basis of the human capacity to revisit, elaborate and change one’s awareness about the past. Each time a memory is retrieved, it is reworked through protein reconfiguration, but not with de novo protein synthesis. In summary, new memorization requires the participation of the hippocampus and amygdala, and it requires protein synthesis. Reconsolidation does not require de novo protein synthesis. If protein synthesis is chemically blocked, no new memory can be developed, but reconsolidation (reworking) is preserved\(^6\). One could argue that the continuous process of memorization and reconsolidation can be seen in the restless human tendency to deconstruct old forms and find new meanings\(^9,69-71\).

**Identity narrative (IdN)**

**IdN and autobiographical memory**

In this contribution we are proposing the concept of Identity Narrative (IdN) to designate a set of non-declarative, implicit memories and response patterns acquired prior to the emergence of autobiographical memory (AM). IdN is a dimension of AM. IdN continues to coexist and facilitates the development and reshaping of AM throughout life.

Humans acquired the unique ability to examine a present moment experience and reframe such an event in the context of one’s personal past. Humans have a sense of continuity in time, which is uniquely possible due to the existence of AM. Autobiographical memory gradually arises during preschool years. It is a form of declarative (explicit) memory\(^15\). Squire\([72]\) distinguished between declarative (conscious recollection) and non-declarative (without conscious sense of “pastness”) memory. Tulving’s contributions\([73,74]\) on memory have delineated the differences between declarative semantic memories (facts) and declarative episodic memories (events). He also described a subtype of episodic memories, the autobiographical memory (AM). The main features that differentiate AM from episodic memories have been outlined in a large body of research and more recently summarized in contributions by Fivush\([75]\) and Nelson & Fivush\([76]\); (1) Self-definition: AM includes a sense of continuity, an autonoetic (a sense that events happened to oneself) experience, and is intimately related to the self-concept; (2) AM defines the self in relations to others, e.g., in the social context. Memories create a cultural and social bond with others. Thus, AM varies with culture and gender, as it contributes to a person’s social identity, and it provides for a culturally canonical biography\([77]\); and (3) Self-regulation: The ability to create coherent narratives of one’s emotional experience has an emotional healing effect. As we will see below, awareness of past events and the construction of elaborate narratives of personal events create meaning and promote processing of adverse experiences. Children who participate in adult-guided reminiscing show a higher level of understanding and self-regulation\([78,79]\).

Yet, the literature on AM does not cover any implicit memory component. We propose that IdN is an necessary dimension of autobiographical memory. It is encoded information beginning with early experiences which are gradually retained as implicit memories. It provides AM with implicitly encoded predictable patterns of reactions to the environment which first develop in a dyadic relationship with caregivers. IdN develops beginning with the time of childhood amnesia but continues to expand and reshape throughout life. IdN creates an early narrative, “a way of being,” rather than “a way of remembering.” This way of being is created by parental interactions, attachment and life experience, including social and cultural experiences. Earlier contributions have also revealed prenatal stimulations to be encoded in the fetus’s brain\([80]\). There is evidence that life-events, especially interactive experiences from ages 0 to 3, are in fact stored and influence a person’s development and future personality\([81]\). Unlike autobiographical memory, which is specific to humans, evidence of IdN is believed to emerge in animals. Animal studies\([27]\) have demonstrated that exposure to adverse experiences in very early age results in changes in the rats’ reactivity in adult life without an apparent direct recollection (by observable behavior) of the events.

In humans, IdN facilitates the gradual rewriting of life experiences into an autobiography during and after pre-school years and allows for lasting personal memories and behavioral characteristics. It is a neuro-cognitive implicit memory scaffolding by which explicit memory can become “self” or “the way a person is.” Autobiographical memory, a specifically human characteristic, additionally provides awareness about oneself. There is a neurological basis for the exchange between explicit and implicit memory. Explicit memories can actually be converted into implicit memories, but the process is lengthy and requires repetition and practicing. An example is the acquisition of skills in sports or playing a musical instrument, where certain tasks start out voluntary, generated by activation of motoric areas of the cortex and become semiautomatic or automatic, as they are associated with activation of cerebellar and subcortical areas\([57]\). Skills related to performing a musical instrument or the mastery of a physical skill are not purely motoric. They require complex associations that arise with great precision and involve large-scale cortical activations. Yet their activation is beyond conscious awareness. Such implicit information is perceived by a subject as arising seamlessly out of one’s “nature.” Other mechanisms, like “ re-entrance”\([82,83]\), and its anatomical substrate, the cortical/subcortical re-entrance pathways, also have significant importance in the implicit-explicit memory exchange. Their detailed description is beyond the scope of this paper (Figure 1).

IdN specializes in the organization and holding of autobiographical information. In this way it promotes patterns that are personally predictable and thus may promote stable human relationships, an adaptive social trait. IdN is also

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15 Declarative (explicit) memories are episodic and semantic. Non-declarative (implicit), outside the conscious awareness are classified into procedural and priming.
an implicit record of one’s early experiences and patterns of interaction, on which incoming information is recruited, implanted and built to create an autobiography. In this way, an autobiography becomes deeply rooted in a person’s identity.

We propose that IdN is composed of many sequences of implicit memories, *implicit scripts*, which are implicit memory units acquired in time. They can be partially recalled, mainly as memory traces. They connect through “key points” to a working memory of events (Figure 2). Such key points are memories of experiences proximal to the implicit scripts, which can be explicitly recalled.

Thus, IdN is a necessary feature of a person’s development through which some aspects of the self develop earlier to actively prepare the process of maturation through language and AM. Due to its implicit, automatic-like nature, IdN makes the acquisition of main features of AM possible: The autoonetic experience, “remembering that it happened to me” [74]; linking past to present and the ability to “own” the changes in one’s own self [84]; and the ability to observe, in an organized manner, a personal chronology [85,86]. These are functions of AM but without an IdN, autobiographical events would not likely be owned and would be perceived merely as varied episodic memories.

The period of childhood amnesia is one of the most significant indications of an implicit component (IdN) in the formation of autobiographical memory. Childhood amnesia, the first three to five years of life, for which most people have little or no recollection, is the period during which IdN is formed and built by a gradual acquisition of implicit, experiential memories. AM starts when childhood amnesia ends, sometimes between ages of three to five. The literature points to the specific factors that favor an earlier onset of autobiographical memory in some cases and thus a shortening of the amnestic period. Cultural factors and gender differences [87-90]; emotional factors, including increased emotional awareness [88,91,92]; acquisition of cognitive self with emphasis on details and distant memory [93]; interactive style and verbal exchange with caretakers [94]; and event segmentation, the division of events into smaller episodes [95], have all been found to influence childhood amnesia and the extent of autobiographical memory. Pre-school children whose mothers have a reminiscing style have an earlier age of first memory [96-98]. All these further create a fluidity and continuity between early experiences, the creation of the IdN, a proto-narrative, and the ensuing emergence of AM. IdN is a network of relatively stable memory coordinates onto which conscious autobiography is mapped.

There is evidence throughout life of a two-way exchange between autobiography and IdN. Acquired life experiences are all filtered by a person’s existing IdN. They may be stored as implicit scripts and may or may not be eventually incorporated into IdN. Below we will cover some of the factors that favor incorporation of scripts into IdN.

**Clinical implications: The Shaping of the Identity Narrative**

Life events interact with autobiographical and Identity Narratives to create changes throughout an individual’s lifespan. We are reviewing five specific instances:

1. **Attachment, language and IdN**

   Besides being crucial in accomplishing an output of autobiographical narrative, language also participates in the provision of meaning and awareness for life events. In humans, language development is both a marker of and a vehicle for the accomplishment of one of the most significant evolutionary functions in species survival, that of attachment. As seen in figure 3, interactive speech engages large bilateral hemispheric areas, a feature that overlaps with numerous brain processing functions [99-111]. Elsewhere, we have proposed the designation of a communication beltway of brain activation [112] (Figure 4).

   Patterns of attachment can be viewed also as types of IdN. The study of attachment, by means of the Adult Attachment Interview (AAI) relies on eliciting composite memories, parts of autobiographical memory and earlier life narratives [114]. This is accomplished by analyzing the coherence and cooperation of speech and communication patterns, which have

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17 European-Americans have a shorter amnestic period compared to Asian-Americans.
18 Cognitive self develops at approximately the first 24 months of age.
19 More elaborate exchange about the events leads to more recall.
20 Clinical experience may suggest that Winnicott’s “average expectable environment” is necessary in adults as well to create an optimum non-threatening living environment in a pluralistic society that promotes the personal evolution of IdN.
21 The term, “communication beltway,” mirrors terms such as “core,” “belt,” and “parabelt,” describing the neural activity of tone perception in the auditory cortex.
been shown to be accurate markers of attachment. For instance, unresolved/disorganized attachment (U/d) produces speech that becomes temporarily disorganized and disoriented in discourse or reasoning while recollecting traumatic events. Such lapses in monitoring have been described as speech equivalents of dissociations.22

Animal studies on attachment are promising in elucidating the neurobiology of IdN. In animals, maternal absence from the nest increases cortical desynchrony in pup rats [120]. Maternal presence produces amygdalar deactivation (equivalent to what is seen in human down regulation of emotions) in pups [121]. In rats, social relationships have been demonstrated to create stress buffering via the HPA axis [122,123]. In rats, learning processes are part of the acquired attachment patterns, which occur via the olfactory system and arise within a developmental schedule [124], supporting an animal model for enduring personality features shaped by environment. Thus, implicit type of learning and associated neural activities serve as a reshaping of the immature brain. Such learning creates enduring individualized behavioral patterns, hence, a possible animal model for the development of IdN.

2. Traumatic stress

Adverse life events and traumatic stress have a profoundly modifying effect on a person’s IdN. Traumatic events are known to result in hyperconsolidated traumatic memories. Such hyperconsolidation has an evolutionary role in danger recall as a survival mechanism [125-128]. Traumatic memories have features of implicit memories. In the presence of reminders of trauma, they are first to be recalled and become explicitly expressed. Neurobiologically, this is a byproduct of stress-related catecholamine hyper-release, which has a memory-consolidating effect [129]. The resulting unprocessed traumatic memories have a high emotional valence and tend to be reactivated beyond an individual’s control. Hyperconsolidation of the unprocessed traumatic memories [130], explains the re-experiencing (uncontrolled obsessive recollection, nightmares) of traumatic events, one of the most painful symptoms for individuals with PTSD. In neuroimaging studies, traumatic re-experiencing is accompanied by a right hemispheric dominance and activation of subcortical areas. This provides the implicit quality of traumatic re-experiencing [131]. Traumatic memories are also non-verbal, emotive and somatic in their experience, accompanied by a low activity of the left-sided brain regions charged with time discrimination [132,133]. For an individual with PTSD, the traumatic narrative dominates the IdN. Overall then, adverse life events and traumatic stress have a profoundly modifying effect on a person’s IdN.

3. Psychotherapy

An IdN can also be gradually enriched with new health-promoting experiences. For the initial purpose of psychological healing a reinterpreting of personal history is required. The discrepancy between historical truth and personal narrative truth has been previously covered [134-137]. This discrepancy may be at the base of a natural healing process necessary for survival. It becomes particularly significant in the progress of psychotherapy, as different competing narratives evolve [136]. In the end, a new narrative “truth” is created which overrides for instance any previous trauma-related identity of an individual. In this way, adaptive variations between the historical truth (the trauma) and the new narrative truth (rebuilt IdN) provides one for subtypes of insecure attachment, e.g., dismissive, angry/preoccupied, disorganized/disoriented [115,116,117,118,119].22

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22 The Adult Attachment Interview uses as a benchmark the four linguistic maxims of Grice [115 for optimal interactive speech: balanced in quality (present evidence), quantity (be succinct), relations (relevant to topic), and manner (be clear and ordered). For instance, in adults, minimal or no violations of Grice’s maxims predicts secure attachment. Specific violations of Grice’s maxims have been quantitatively determined.
aspect of healing over time. In essence, the curative effect of psychotherapy is ultimately a reshaping in autobiographical narrative and its implicit component, the IdN.23

Long-term exposure to a variety of modalities of psychotherapy may create a new, regulated IdN (a new way of being) that layers over previous symptomatic aspects of the self. The newly formed memories, which include the activation of regulatory circuits, may act as extinguishers by overriding older, maladaptive narratives. Similar to the extinction process (which includes a suppression rather than erasure of past activations), exposure to certain noxious social circumstances may reactivate aspects of the old unregulated IdN [53,138,139].24

In clinical practice, one of the most poignant instances of narrative change is the process of trauma recovery during prolonged exposure therapy. Through numerous repetitions of describing the trauma, the memories are processed with a progressive dissipation of the emotional pain [141,142]. Psychotherapy is a model through which new narratives become part of a person’s IdN. It has evolved out of ancient shamanic, religious (e.g., confession, dream interpretation), and social practices. Such practices mobilize pre-existing pathways of change in development, attachment and learning. A body of literature on the mind-brain connection, the neurobiology of psychotherapy and associated brain processing mechanisms (“transprocessing”) has emerged [30,143-145]. Through psychotherapy, a variety of dysfunctional components of an autobiographical narrative and implicit scripts with high emotional valance are processed and relearned in a more adaptive manner.

4. Childhood and adult play

Play has been described as a proto-emotion [5,7,146] that emanates from the “core self,” which seems to originate in the animal brain stem. It transcends species, and it has been proposed that by means of interactive play with parents and peers, young animals acquire and practice new living skills [147]. Play may serve as a vehicle for acquisition of adaptive implicit scripts of an IdN during growth, development and even adulthood.

5. Life Experience: the implicit re-routing hypothesis

Like play, exposure to real life also promotes adaptation and survival. We hypothesize that through reshaping of narratives and implicit memory rerouting, IdN fulfills two major survival functions: a) Psychological survival, an adaptive down-regulation of memory and remembrance, to create peace of mind; b) Physical survival, which requires an up-regulation or enhancement of memory, to remember danger. The latter can trigger the fight-flight response for rapid physical escape of danger.

In order to survive in the long run, humans have an inherent biological need for peace of mind. The need for early optimal environments to create the sense of stability (which contributes to long-term peace of mind) has been extensively documented in the developmental literature [17,16]. Psychological survival is in fact a process by which humans naturally tend to gravitate towards peace of mind. Such peace of mind may have an evolutionary value, as it favors a continuous desire to live and procreate. This is accomplished in part by acquisition of narratives (stories) about life from one generation to another [92]. IdN contributes to an implicit sense of familiarity and diminution of fear of the unknown. Consistent with recent memory studies, it is more adaptive and less socially disruptive to interpret experiences and memorize them in a personally biased manner. A personally biased memory fits an individual’s IdN, thus maintaining harmony between a person’s basic assumptions and the social environment [148-150]. A “Rashomon-like” [151], personalized recollection of reality is ultimately adaptive by decreasing anxiety of the unknown. The same applies to groups and organizations. For example, rumors, gossip, and urban legends may have a similar role to maintain a predictable, less threatening perception of a social environment [150,152]. Similarly, ego defense mechanisms, which often justify one’s own actions, are also part of an individual’s implicit memory pool contained in the IdN, with a role in maintenance of social homeostasis. By doing so, an individual develops a sense of control, self-worth and competence [153], characteristics consistent with growth and survival within a certain social context. In this sense IdN, the implicit memory component of autobiography, is part of a drive of social preservation.

In sum, the process of internalizing life experience gravitates between two poles of adaptation: (a) on the one hand, the preferential recollection of danger for future survival; and (b) on the other hand, the ability to distort reality and diminish recollection, in order to survive psychological torment. This is accomplished by narrative reworking [154], hence the proposed designation of “implicit re-routing hypothesis of IdN.”

C. Formation of IdN

Concomitant new narratives develop, and a reshaping process occurs throughout life. We are suggesting several possible mechanisms: (a) A paradigm shift in narrative is the acquisition of new insights and knowledge, e.g., a sudden insight about a question in mind (the “Eureka” or “Aha!” moment) [155]; insight induced by hallucinogens [156]; (b) Life experiences with high emotional valence and of profound personal significance [157]. As seen in trauma, memory consolidation influenced by emotional gradients from catecholamine system activation may also occur in intense emotional experience without trauma. An inverted U-shaped pattern of catecholamine-related consolidation exists. At low and high levels of norepinephrine activity, there is significant negative interference with memory storage. Within a mid-range level of adrenergic activation, a linear relationship between emotional valence and memory storage exists [158-160], thus possibly favoring memory.
retention of a life event into the IdN. Many an experience or skill that is adaptively developed, practiced, or retained through an emotionally-laden experience become IdN. Such experiences are perceived as “owned” (they are part of autobiography), as they become IdN. In the end, some life experiences become part of autobiography, while others are retained as routine episodic memories. (c) Through repetition and practice throughout life, a number of new memories become part of implicit scripts (Figure 2). For instance, formalized education leads to long-lasting changes in attitude, self-awareness and even behavior, most likely by creating new implicit scripts. A number of new memories become part of the IdN towards a new personal and/or professional identity. (d) Prolonged exposure. Long-term relationships with people, groups (facilitated likely by mirroring) and places lead to a gradual incorporation of experiences and associated memories into the IdN and autobiography. Figure 2 illustrates the relationship between autobiographical memory, IdN, implicit scripts and key points. Sometimes evocation of a sensory experience which triggers an entire sequence of AM26

Conclusions

In this review we propose that autobiographical memory, a characteristic specific to humans, is built on a platform of implicit memory, the IdN which is encoded early and rapidly into the underlying brain structures of the self during the period of childhood amnesia. It continues to be reshaped throughout life. IdN probably precedes AM evolutionarily and constitutes an ontogenetic scaffolding for the gradual “uploading” of the autobiographical self. Besides containing numerous details essential for a person’s identity, IdN and AM also hold information about health, knowledge about one’s genetic makeup and awareness of diagnosed psychiatric conditions. These all influence outcomes in psychiatry. In this regard, IdN and AM are crucial in the development of a personalized approach to psychiatric diagnosis and treatment.

Besides the study of attachment, development and psychotherapy, Identity Narratives also have a direct implication in future studies of psychopathology. Most psychiatric symptoms deeply impact IdN. Conversely, IdN holds information of the “particulars” of psychiatric manifestations in each patient. Currently, a significant value has been placed on individualized treatment approaches as part of personalized medicine [162]. While an attempt to develop more sophisticated diagnostic criteria in American psychiatry has continued [163,164], facing economic pressures and constraints, most clinicians continue to employ practices governed by simplified and minimalistic approaches [165-167]. In the future, expanding diagnostic formulations into an autobiographical subcategory heading would enhance diagnostic sophistication and personalized treatment. Still to be developed, such a subcategory would be broad enough to include events of gradual incorporation into autobiography: (a) frequent paradigm shifts, like sudden insights; (b) life experiences with high emotional valence and profound personal significance (including trauma); (c) repetitive and practiced events in life (including education and skills); (d) singular life situations of prolonged exposure. Information such as that proposed in the DSM 5 Appendix [168] regarding “Identity” and “Self-direction,” [169] would further fit into our proposal of an autobiographical and identity assessment of each psychiatric patient [171]. Inclusion of such diagnostic expansion may improve long-term predictors of treatment response and outcomes.

Competing interests

The authors report no competing interests.

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