Dissociative Memory Disorders and Immigration

Angelica Staniloiu, Sabine Borsutzky and Hans J. Markowitsch
{astaniloiu; sabine.borsutzky; hjmarkowitsch}@uni-bielefeld.de
Physiological Psychology, University of Bielefeld
P.O Box 10 01 31, 33501 Bielefeld, Germany

Abstract
Studies of immigrant populations have shown that the stresses associated with the process of immigration and acculturation could lead to significant psychological, psychiatric or somatic symptoms. In the current presentation, we review four cases of patients who developed Dissociative Disorders (Dissociative Amnesia and Ganser Syndrome, respectively) on a background of stresses related to immigration. The patients were investigated psychiatrically, medically, neurologically and by neuropsychological methods. All four patients developed severe psychiatric dissociative symptoms after objectively minor stresses that involved accidents (physical injuries) of mild severity, which occurred several years after the patients had immigrated to the new country of residence. The neuropsychological profile of these patients revealed certain similar characteristics, such as executive functioning deficits (such as limited cognitive flexibility) and impairments of emotional processing. Although no firm conclusions can be drawn based on the limited number of case reports, we propose that chronic psycho-social stresses related to immigration and acculturation could lead to Dissociative Disorders in certain immigrant populations via a dysregulation of the hormonal stress responses (“allostatic load”), which is mediated by factors related to pre-migration experiences, cultural affiliations and individual characteristics, such as cognitive flexibility, emotional processing abilities, language skills and competence and explanatory model of illness.

Keywords: acculturation; dissociative disorder; amnesia; Ganser syndrome

Introduction
Memory’s relevance for human beings is captured by the following quotation of Ewald Hering: “Memory connects innumerable single phenomena into a whole, and just as the body would be scattered like dust in countless atoms if the attraction of matter did not hold it together so consciousness – without the connecting power of memory – would fall apart in as many fragments as it contains moments.” (Hering, 1870/1895). The connecting (binding) power of memory may be also metaphorically conveyed by the etymology of the word re-collection (“re-collection” derives from the word “collection” and the latter has similar roots as “colligation”, which means binding) (Casey, 2000).

Memory Systems
Memory is however not unitary, but is divided along a chronological and content axis, respectively. Along the content-dimension, five distinct long term memory systems have been described: procedural, priming, perceptual, semantic and episodic. The episodic memory system is currently viewed as being equivalent to the autobiographical-episodic memory (AEM) system and autobiographical-episodic memory is defined as the conjunction of subjective time, autonoetic consciousness and the experiencing self (Tulving, 2005). As not all autobiographical memories have an episodic quality, a distinction is emphasized between autobiographical-episodic and autobiographical-semantic memory (the latter refers to personal knowledge, such as one’s name or date of birth).

Being the most advanced acquisition both ontogenetically and phylogenetically, the autobiographical-episodic memory system is more susceptible to insults induced by environmental factors (such as physical injuries or psychological stress) than other memory systems. Psychologically stressful events can trigger disturbances of the integrated organization of memory, perception, consciousness and identity, leading to the so called dissociative disorders.

Dissociative Memory Disorders
Dissociative amnesia – one of the dissociative disorders in DSM-IV-TR (2000) – has as its central feature the inability to recall important personal information. The disturbance is precipitated by stressful experiences or psychological trauma and is not better accounted for by normative forgetfulness or by other psychiatric or medical conditions (such as traumatic brain injury). Malingering has to be ruled out. The symptoms of dissociative amnesia cause significant impairment of functioning or distress. The magnitude of experienced distress varies according to different factors, including cultural affiliations and culturally-shaped views of dissociative experiences, selfhood and past (Kleinman, 1980; Carlson & Rosser-Hogan, 1991; Douglas, 2009).

Dissociative amnesia is a form of psychogenic amnesia, a condition that is characterized by the preponderant contribution of psychological factors to its emergence and the absence of structural brain changes as identified via standard structural brain imaging techniques. Amnesic disturbances of psychogenic nature occur not only in dissociative amnesia, but also in other dissociative disorders, such as dissociative identity disorder (DID), dissociative fugue, Ganser syndrome, and dissociative trance disorder and possession trance. Ganser syndrome - a diagnostic entity that has undergone several revisions over the years- is presently listed under the category of Dissociative Disorder Not Otherwise Specified in DSM-IV-TR (2000) , where it is simply defined by giving approximate answers to questions.
(e.g., “2 plus 1 equals 4”). Ganser’s (1894, 1904) original description of the syndrome was however much broader than the current DSM-IV-TR one. It included a hysterical semi-trance or twilight state, characterized by a tendency to give approximate answers (vorbeireden), impairments of consciousness, amnesia and hallucinations, being more consistent with the later views of this disorder as a “brief reactive psychosis to stress” (Simeon & Hollander, 2000, p. 1575).

Memory impairments of dissociative nature could also be encountered in certain anxiety disorders, such as acute stress disorder or post-traumatic stress disorder (PTSD). PTSD conditions, which are accompanied by “negative” dissociative symptoms (such as amnesic conditions or psycho-physiological hypo-arousal to the reminders of the trauma) (Markowitsch, 2000), seem to have different neural correlates in comparison to PTSD conditions that are characterized by “positive” dissociative symptoms (such as flashbacks), raising the question of different subtypes (Lanius et al., 2001).

Psychogenic amnesias can be further classified according to the degree and timeframe of impairment (global versus selective, anterograde versus retrograde) of autobiographical–episodic memory and the co-occurrence of deficits in autobiographical-semantic memory and general semantic knowledge. The most frequent manifestations of psychogenic amnesia are forms of retrograde amnesia. A particular type of psychogenic retrograde amnesia has been termed the ‘mnestic block syndrome’ (Markowitsch et al., 1999b). This form is characterized by an autobiographical-episodic memory block, which may comprise the whole past life. Affected patients can have otherwise largely uncompromised semantic memories; they can read, write, calculate and know how to behave in social situations. Furthermore, they can acquire new long-term autobiographical-episodic memories, although the newly acquired events may be less emotionally-laden in comparison to the ones of normal subjects (Brand & Markowitsch, 2009; Reinhold & Markowitsch, 2009).

When retrograde psychogenic amnesia is accompanied by suddenly leaving the customary environment – home and city – and loss or compromise of knowledge about personal identity – the condition is referred to as psychogenic (dissociative) fugue (Markowitsch, Fink, Thöne, Kessler, & Heiss, 1997a). This condition was named a century ago in Germany Wanderlust (cf. e.g. Burgl, 1900). It was traditionally thought to preponderantly affect men, although some studies conducted during non-war periods revealed no gender differences.

Sometimes the ‘blocked’ autobiographical-episodic material is content-specific (selective) and/or retrograde amnesia is limited to specific life epochs (Markowitsch, Thiel, Kessler, von Stockhausen, & Heiss, 1997b). Retrograde psychogenic amnesic conditions may be occasionally accompanied by anterograde memory deficits. However, cases of psychogenic anterograde amnesia (inability to store new AEM episodes long-term) with preserved retrograde autobiographical-episodic memory are rare (Kessler et al., 1997; Markowitsch, Kessler, Kalbe, & Herholz, 1999a; Kumar, Rao, Sunny, & Gangadhar, 2007).

**Stress and Dissociative Disorders**

Dissociative disorders have been described in a variety of cultures and have been recognized to occur in response to traumatic stress (Seligman & Kirmayer, 2008; Friedl & Draijer, 2000; Mulder, Beutrais, Joyce, & Ferguson, 1998). Dissociative symptoms and conditions tend to affect younger people (Reinhold & Markowitsch, 2007) Dissociative amnesia – the most common of all dissociative disorders (Maldonado & Spiegel, 2008) – was reported to be more frequent in the third and fourth decade of life (Putnam, 1997; Kanzer, 1939; Coons & Milstein, 1972). The younger age distribution may partly reflect developmentally-dependent differences in the windows of vulnerability to stress of the main brain structures involved in autobiographical-episodic memory processes.

Although several studies reported a direct relationship between the severity of exposure to trauma and incidence of amnesia, cases of patients who developed amnesia after a seemingly minor stressor are however not such a rare occurrence. In a substantial number of the latter cases the collateral information revealed a history of repeated traumatic experiences with early onset, raising the suspicion of a pathogenetic model of kindling sensitization or alternatively an incubation effect (Lupien, McEwen, Gunnar, & Heim, 2009).

Both stress and dissociation have been linked to adaptation as well as pathophysiology. They could therefore be viewed as being part of a continuum that ranges from physiological, adaptive or non-pathological to maladaptive and pathological. Some non-pathological dissociative experiences, such as daydreaming, absorption, reverie may be linked to positive emotions and/or may enhance performance by focused allocation of cognitive resources (Seligman & Kirmayer, 2008). Several defensive functions of dissociation, such as automatization of behavior, compartmentalization of information and affect, analgesia and detachment from self have been described. These functions were hypothesized to be recruited together in an acute traumatic situation in order to alleviate severe psychological and probably physical pain (Putnam, 1997).

Similarly to dissociation, stress hormones, such as glucocorticoids could have an adaptive or pathogenetic role. Glucocorticoids are involved in processes of brain maturation and remodelling, cell survival and learning and memory. During acute stress glucocorticoids hormones are released to re-establish the homeostasis of the organism in the face of a challenge (a process called “allostasis”; McEwen, 2000). Persistently elevated levels of glucocorticoids could however have detrimental effects on brain function and/or structure as well as on other systems of the body (such as immune or cardiovascular system). Apart from glucocorticoids, stress responses are modulated by a
variety of other hormones (including arginin-vasopressin [AVP], oxytocin).

The degree to which chronic repeated stress or massive acute stress may affect an individual’s homeostasis and lead to psychiatric and/or non-psychiatric disorders depends on genetic dispositions, type of stress, duration of stress, developmental phase, age, gender, context, prior experiences, personality characteristics (e.g. Becker-Blease et al., 2004). Certain genetic polymorphisms may on one hand bias the normal maturation trajectories of key brain structures that are involved in processes of memory and emotion, increasing their susceptibility to certain environmental factors (Pacheco et al., 2009). On the other hand life experiences (especially early ones) could alter the gene expression via epigenetic modifications and lead to long lasting changes in stress hormonal responses, synaptic plasticity and behavior. Along this line McGowan et al. (2009) recently showed epigenetic modifications (increased methylation) of the promoters of several genes of interest in the brain of victims of suicide with a history of childhood abuse in comparison to the suicide completers without a history of childhood abuse. Accumulating evidence suggests that epigenetic changes might also be involved in processes of learning and memory such as the extinction of fear-related memories (Roth & Sweatt, 2009).

Several key brain structures for autobiographical memory and emotional processing have been identified as being sensitive to the consequences of exposure to negative or stressful experiences (such as amygdala and hippocampal formation, prefrontal cortex and specific white matter tracts). Reductions in the hippocampi volumes and autobiographical-episodic memory impairments have been reported in patients with stress-related psychiatric conditions, such as post-traumatic stress disorders (Bremner et al., 1997), recurrent major depressive disorders (especially the ones with history of trauma) (Vythilingam et al., 2002; Campbell, Marriott, Nahmias, & MacQueen, 2004) and dissociative identity disorder (Vermetten et al., 2006). The stage of development or declining of these key brain structures influences their susceptibility to the stress effects (Lupien, McEwen, Gunnar, & Heim, 2009). This may partly explain why the same type of traumatic experiences may be associated with different brain morphological or functional changes and psychopathology.

The existence of sexually dimorphic brain structures and functions may partly explain the observed gender differences in the susceptibility to stress and manifestations of stress-related psychopathology (Cahill, 2006; Lanius, Hopper, & Menon, 2003).

Changes in white matter tracts have also been reported in response to early stress. In children with a history of early deprivation, microstructural morphological changes of the uncinate fascicle, which were more prominent on the right side, were recently reported (Govindan et al., 2009). The right hemispheric uncinate fascicle plays an important role in memory processes and damage of its ventral portion has been involved in the etiology of organic (neurological) memory disorders (Levine et al., 1998).

Organic and Psychogenic Amnesia: Two Sides of the Same Coin

While the term ‘psychogenic’ in psychogenic amnesia implies that these amnesias are distinct from those with an organic basis (e.g., Kroll, Markowitsch, Knight, & von Cramon, 1997), more recent findings obtained with glucose positron-emission-tomography (PET) and other functional brain imaging methods indicate that indeed the brain is affected in these patients as well. In a single case study, Markowitsch and co-workers (Markowitsch, Kessler, Van der Ven, Weber-Luxenburger, & Heiss, 1998) found in a patient a grossly reduced brain metabolism following a psychogenic condition accompanied by severe retrograde and anterograde amnesia. Similar reductions in the brain’s glucose consumption were also found in subsequent investigations of other patients with a condition of psychogenic amnesia and are reviewed in Reinhold, Kühnel, Brand, and Markowitsch (2006) and in Brand and Markowitsch (2009). In a recent study of Brand et al. (2009), which reviewed 14 patients with psychogenic amnesic disturbances functional brain imaging obtained in resting state showed evidence of metabolic changes in the right temporofrontal regions with a common significant hypometabolic zone in the right inferolateral prefrontal cortex.

Immigration and Stress

Migrants’ physical and mental health reflects the interplay between their genetic predispositions and environmental factors (including their life experiences). While certain factors related to migration seem to be protective (the so-called “healthy immigrant effect”; Breslau et al., 2007; Alegria et al., 2008), others appear to increase the risk for certain physical and mental diseases.

Stressful life experiences could occur during any of the following stages associated with migration, such as during pre-emigration, migration itself or post migration (Lindert, Schouler-Ocak, Heinz, & Priebe, 2008). Legal status, income, living situations, ethnic density in the neighbourhood, language proficiency (as a measure of acculturation), and cultural factors modulate the risk for physical and mental health disorders (Toppelberg, Medrano, Pena Morgens, & Nieto-Castanon, 2002; Veling et al., 2008).

“The price body pays for being forced to adapt to adverse psychosocial or physical situations” is defined as “allostatic load” and “it represents either the presence of too much stress or the inefficient operation of the stress hormone system” (McEwen, 2000, p. 110f). Apart from the brain, several other body systems can be targets of the allostatic load (including cardiovascular, immune and endocrine system). Evidence for an increased allostatic load in migrants comes from several studies that showed an increased risk for cardiovascular diseases (including hypertension) in immigrants (Gualdi-Russo, Zironi, Dallari, & Toselli, 2009; Lear, Humphries, Hage-Moussa, Chockalingam, & Mancini, 2009). In one study the risk was still significant after adjusting for variables, such as age, sex, ethnicity, income,
education, family history of heart disease, diabetes, smoking, physical activity, body mass index, visceral adipose tissue, lipids, insulin, glucose and blood pressure (Lear et al., 2009). The risk for cardiovascular disease was found to be higher among migrants with lower levels of acculturation (as determined by language proficiency) (Eamranond et al., 2009). High prevalence of diabetes mellitus was identified among immigrants (Wändell & Gafvels, 2007), which in one study correlated with the length of residence in the new country (USA) (Oza-Frank, Stephenson & Venkat Narayan, 2009). In one study the level of acculturation (language proficiency) predicted hormonal stress responses and pregnancy outcomes (gestational age at birth) among pregnant Hispanic women (Ruiz, Dolbier, & Fleschler, 2006).

Knowledge about the mental and physical health of immigrants remains, however still limited. Higher rates of psychoses among immigrants and their descendants were reported by several studies (Zolkowska, Cantor-Graae, & McNeil, 2001) and thought to be linked to their immigration-related experiences (including acculturative stress, lack of robust ethnic affiliation) (Veling et al., 2008) or epigenetic mechanisms (Dealberto, 2007). In several immigrant populations somatization was found to be prevalent and related to psychological distress.

For certain psychiatric conditions it was noted that their risk in migrants might increase with the duration of residence in the new country. This raises the hypothesis that at least in the case of certain psychiatric conditions, chronic stress related to immigration and acculturation might play a role (Haasen, Demiralay, & Reimer, 2008).

**Immigration and Dissociative Disorders**

Dissociative symptoms and disorders have a strong connection to self. Alterations of the bodily pre-reflective self and minimal phenomenal selfhood accompany depersonalization symptoms (out of body experiences) (Blanke & Metzinger, 2009), while dissociative memory disorders lead to impairments of autonoetic self-consciousness and sense of personal identity. A possible connection between immigration and dissociative disorders was suggested many years ago by several psychoanalysts, who marked that immigration posed a significant threat to feelings of identity and self-cohesiveness (Grinberg & Grinberg, 1989). Dissociative symptoms have extensively been studied as part of posttraumatic stress disorder in immigrant populations or refugees who were victims of torture or war or as part of the culture-bound syndromes. A higher propensity of certain ethnic groups to react to distress with dissociative symptoms has been described (Guaraccia, Rivera, Franco, & Neighbors, 1996). This propensity was noted to inversely correlate with successful acculturation to a Western society (Marshall & Orlando, 2002). Little has so far been published however in the psychiatric or psychological literature about the occurrence and characteristics of other dissociative condition in immigrants, in particular the ones which belong to the DSM-IV-TR category of Dissociative Disorders (such as Dissociative Amnesia and Dissociative Disorders Not Otherwise Specified-Ganser Syndrome).

In the current contribution, we review data from four cases of patients who developed Dissociative Disorders (Dissociative Amnesia and Ganser Syndrome, respectively) on a background of stresses related to immigration.

**Case Studies**

All patients in the study were young or middle aged men, with a background of immigration, who were referred for neuropsychological testing by their primary care physicians, psychiatrists or neurologists. They all gave informed consent for neuropsychological testing. Prior to neuropsychological testing, all these patients underwent extensive medical and neurological work up (including conventional structural brain imaging studies), which did not yield any significant findings. They also underwent thorough psychiatric evaluations.

In terms of demographics, all patients were married and two of them had children. Their age at the time of the assessment ranged from late 20’s to early 50’s (26-51). They all had current legal immigrant statuses in the country of residence. Two patients immigrated to Germany from Poland. One immigrated to Germany from Kazakhstan. Another one immigrated to Canada from Albania. Three patients had high school education or the equivalent. One patient finished undergraduate university studies, but did not yet have fulltime employment matching his qualifications. All the patients were characterized by severe psychiatric symptoms of preponderantly dissociative nature, affecting the memory domains. Their symptoms followed a chronic course, in spite of various treatment interventions. At the time of neuropsychological assessment all the patients were unemployed as a result of their symptoms, with three of them receiving work disability benefits. The onset of psychiatric symptoms occurred when the patients were in the second to early fourth decade of life, several years (ranging from 7 to 22 years) after the patients’ migration to the current country of residence. In all cases the onset of symptoms followed a seemingly minor accident (mild traumatic brain injury). In three cases the accidents were work related. Two accidents involved a motor vehicle accident. One patient was hit by mistake in the head with a tool by a co-worker. He was wearing a helmet at the time of the accident. Another patient was hit by a small iron bar at his work place. In all cases it is unclear if loss of consciousness occurred or for how long. In most cases the collateral information gathered suggested that if any loss of consciousness had occurred, its duration would very likely have been brief. The time window between the onset of symptoms and the date of neuropsychological assessment ranged from a few months to 7 years.

All patients were extensively interviewed in accordance with SCID Structured Clinical Interview for DSM-IV-TR or the German version of the SCID (First, Spitzer, Gibbon, & Williams, 2002).
One patient met DSM-IV-TR diagnosis criteria for major depressive disorder with psychic features and Ganser syndrome. This patient was described in detail in a previous publication (Staniloiu et al., 2009). Another patient met criteria for dissociative amnesia and major depressive disorder, mild. One patient, who in addition to extensive memory deficits endorsed several somatic complaints of unexplained medical origin, was diagnosed with Dissociative Amnesia and Somatoform Disorder Not Otherwise Specified. Another patient was diagnosed with dissociative amnesia. In addition he presented with several symptoms of post-traumatic stress disorder (PTSD), but did not fulfill the entire DSM-IV-TR diagnosis criteria for PTSD. This latter patient, who suffered a work related accident during which a small bar hit his head at the root of the nose, developed both anxiety and profound memory symptoms after the accident. He experienced panic attacks, agoraphobia and nightmares. In addition he had numerous neurological complaints (such as weakness, ataxia and dizziness) for which no neurological organic substrate was found.

An extensive neuropsychological test battery was conducted or attempted with each patient to assess intelligence, attention, executive functions verbal and figural anterograde memory and retrograde memory (autobiographical –episodic, autobiographical-semantic and general semantic remote memory). As the patients were assessed at different sites, unfortunately we did not administer the same tests to all patients. Only two patients underwent formal testing of Theory of Mind (ToM) functions (Baron-Cohen, Wheelwright, Hill, Raste, & Plum, 2001). A test of memory malingering was administered to all patients (Tombaugh, 1996). Personality and psychiatric symptoms were additionally measured with standardized questionnaires.

**Results and Discussion**

All patients showed evidence of significant impairments in multiple cognitive domains. On intelligence tests one patient scored average-good, two patients scored in the average (borderline) range and one scored in the below average range. All patients manifested impaired performance on attention and concentration tasks, which ranged from mild to severe. Consistent with our observations, attention deficits have been documented in previous studies of patients with psychogenic (dissociative) or functional amnesias (Fujiwara et al., 2008; Stracciarri, Ghidoni, Guarino, Poletti, & Pazzaglia, 1994; Campodonico & Rediess, 1996). All patients in the present study demonstrated significant retrograde impairments of autobiographical-episodic memory and two showed additional significant impairments of retrograde semantic memory. Autobiographical-semantic memory was initially impaired in the patient with Ganser syndrome, but then was restored. Various degrees of anterograde memory impairments were evidenced in all patients. Executive functions were impaired in all patients and three patients showed evidence of reduced cognitive flexibility. These findings are congruent with the ones from previous studies, which found executive dysfunctions in patients with dissociative (psychogenic) or functional amnesia (Fujiwara et al., 2008; Glisky et al., 2004; Hennig-Fast et al., 2009). Based on the broad range of psychiatric symptoms, the results of malingering tests and/or the lack of an identifiable external financial or legal motivation, malingering was considered unlikely or highly unlikely in all cases of the current study. Mood or anxiety symptoms were identified in three patients. All patients had a variety of somatic complaints, which could not be explained by a general medical condition and one patient received a diagnosis of Somatoform Disorder Not Otherwise Specified. These findings mirror the ones of other authors, who reported the co-occurrence of dissociative disorders with other psychiatric conditions, such as major depressive disorder and somatoform disorders (Maldonado & Spiegel, 2008; Saxe et al., 1994; Coons & Milstein, 1992). One recent study found similarities between the patterns of hypothalamic-pituitary-adrenal axis dysregulation in major depressive disorder and dissociative disorders (Simeon et al., 2007), which may partly explain the frequently described co-occurrence of the two conditions. ToM deficits were identified in a number of patients with dissociative (psychogenic) amnesia who were investigated in our previous studies (Fujiwara et al., 2008; Reinhold & Markowitsch, 2007). Co-existing impairments of ToM and AEM have also been described in other psychiatric conditions, such as schizophrenia, major depressive disorder, bipolar disorder and autistic spectrum disorders (Corcoran & Frith, 2003; Inoue, Tonooka, Yamada, & Kanba, 2004; Shamay-Tsoory, Harari, Szepsenwol & Levkovitz, 2009; Shalom, 2003; Lind & Bowler, 2009). The two patients in the current study who were administered ToM tests (Reading the Mind in the Eyes test) performed within normal limits on these tests. ToM testing was unfortunately not administered in the other two patients. One of the patients who did not undergo ToM testing presented with severe symptoms of major depressive disorder (in addition to symptoms of Ganser syndrome), which may have had a significant impact on ToM test performance (Inoue, Tonooka, Yamada, & Kanba, 2004).

Though in all the above described patients their symptoms had their onset after a seemingly minor stress, further obtained information (including collateral information) revealed that most of these patients had a history of repeated stressful experiences which occurred during the process of migration or before, suggesting a mechanism of kindling sensitization (Post, Weiss, Smith, Rose, & Frye, 1995) or alternatively an incubation effect (Lupien et al., 2009).

In all cases the conventional imaging structural studies did not detect any significant brain changes and the neurological exams did not point to any organic etiology. Structural brain investigations, techniques like DTI (Diffusion Tensor Imaging), which may have provided an estimate of possible microstructural changes of white matter tracts (Lipton et al., 2008; Tramoni et al., 2009) were, however not performed.
Similar to other reports of dissociative memory disorders (Serra, Fadda, Buccione, Caltagirone, & Carlesimo, 2007; Maldonado & Spiegel, 2008), the onset of psychiatric symptomatology in the cases in the present study occurred after a mild traumatic brain injury. Although a biological contribution of the mild traumatic brain injury cannot be completely ruled out (Tramoni et al., 2009), the emergence of psychiatric symptoms in these patients after a seemingly minor physical accident might from a psychological perspective be viewed as a legitimate way of escaping a situation that was perceived as intolerable and inescapable (Kessler et al., 1997).

Conclusion

In conclusion, the occurrence of dissociative (psychogenic) memory disorders in immigrants might be viewed as a reaction to psycho-social and acculturative stress related to migration, which is modulated by individual characteristics, such as genetic predispositions, cognitive flexibility, emotional processing ability, language competence as well as cultural affiliations and culturally shaped explanatory models of illness and views of trauma, selfhood and past (e.g., Markowitsch, 2008; Han & Northoff, 2009).

References


**Citation details for this article:**
DOI: 10.5096/ASCS200948