

GROSSLY REDUCED EFFORT – A MATTER OF WILL OR OF POSSIBILITY?

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Abstract

Introduction: In the past time we have studied a number of patients with dissociative amnesia – a condition in which retrograde amnesia and deficits in attention and concentration stand in the center. Already decades ago, but especially nowadays, we were confronted with patients without a history of dissociative amnesia who nevertheless manifested a similar symptomatology with respect to their lack of effort or inability to fulfill usual criteria for individuals with normal intelligence level. All three had no evidence of brain damage, but evidence of various stressful situations in their past. *Patients:* We will concentrate on three patients with the described symptomatology who were studied neuropsychologically in detail. At the time of testing, Patient 1 was a young man of 29 years, Patient 2 of man of 45 years, and Patient 3 a woman of 54 years of age. All had university education. While Patient 1 lived alone, the other two patients lived with their partners. *Patient 1.* Patient 1 had given up his studies and his job as an IT-specialist. He seemed to be unable to retain information for more ten minutes. His attention and concentration abilities were far below average. Problem solving abilities were normal. Retrograde memory was at least partially impaired. The lack of brain abnormalities was proven both with magnetic resonance imaging and fluor-positron emission tomography. *Patient 2.* Patient 2 had worked as a high-school teacher, but gave up due to major problems with long-term memory and attention and concentration, all of which were confirmed neuropsychologically. *Patient 3.* Patient 3 was medical doctor who stopped working in her private practice due to severe and lasting exhaustion which in part originated from additional stress during the covid-time. Her long-term memory was normal, but she had problems with more complex forms of attention and concentration and working memory. *Discussion and Conclusions:* Especially individuals in mentally demanding positions seem to be affected by long-term stressful situations for which they apparently had not developed sufficient coping strategies. However, contrary to patients with dissociative conditions, these individuals are fully self-conscious and reflect on their past. We argue that these patients do not have a reduced will – at least not consciously – but just do not have the possibility to make enough effort long-term, because they immediately fall back into a pattern of stress reactions.

Keywords: Stress, attention, concentration, memory.

1. Introduction

Patients – whether neurological or psychiatric – usually require a firm diagnosis. If patients deviate negatively in their intellectual level without showing any overt brain damage – as measurable via brain computer or magnetic resonance tomography – a psychiatric diagnosis is likely (Markowitsch & Staniloiu, 2022). A number of psychiatric diagnoses are accompanied by intellectual decline, as was already noted by Bleuler (1911) who used the label ‘dementia praecox’ for patients with schizophrenia. Nowadays, there are two patient groups with significant and frequently lasting intellectual decline. For one, patients with dementia (e.g., Irlé et al., 1987; Markowitsch et al., 2000; Seidl et al., 2011), and secondly patients with dissociative or functional or psychogenic amnesia (Staniloiu & Markowitsch, 2014, 2015; Markowitsch & Staniloiu, 2016). In fact, there may even be a relation between these two groups of patients (Staniloiu & Markowitsch, 2010). This second group is of interest, as their deficits are reversible in principle (e.g., Lucchelli et al., 1995), and as their diagnosis is a psychiatric one (though they apparently show neurological changes [e.g., Brand et al., 2009], which, however, should be evident in any psychiatric disease [Pietrini, 2003] and was proposed already long ago [Maudsley, 1870]).

While we studied a number of patients with dissociative amnesia over the last years (e.g., Fujiwara et al., 2008; Staniloiu et al., 2018, 2020; Staniloiu & Markowitsch, 2012), we noted over the years an increasing number of patients with no typical syndromes of dissociative amnesia and no apparent brain damage, but with a strong lack of initiative and effort, accompanied by symptoms of mild depression. Three of these patients will be described in the following.

2. Case Reports

The patients came to us, because they or their relatives reported that they lack initiative, cannot deal with their work situation anymore, and feel weary throughout the day. Two of them had brain scans and all three intensive neuropsychological testing. The two older ones lived in a relation and had children. None of them showed any evidence of malingering as assessed with respective tests (Rey-15-item test; Lezak et al., 2012; Test of Memory Malingering [TOMM]; Tombaugh, 1996; Amsterdam-Short-Term-Memory Test; Schagen et al., 1997).

2.1. Patient 1

Patient 1 was a 29-year-old male computer specialist who had given up his position as he said that he became unable to retain information for more than 5 or 10 minutes. This memory deterioration developed over several months, but then remained stable. There were no obvious somatic or psychic problems prior to the memory loss. Serum analysis showed no abnormalities. No drug problems were noted. Nevertheless, he became unable to take care of himself and returned to his parents' home. At the time of our investigation, he did not work on anything and just stayed home. When asked, he could not say what might happen with him in the future. Nevertheless, he seemed of good mood. His social abilities, his general capacity to think, as well as abilities to read, write, and calculate were preserved. Old memories were partly preserved – he at least recognized a number of past general events, but usually could not give details, reminding the investigators of an overgeneral memory effect (Barry et al., 2021; Donix et al., 2010). Though his behavior was somewhat distant, shy, and clumsy, he did not show tendencies of depression.

The patient received various electrophysiological recordings, magnetic resonance imaging (MRI), and FDG-positron-emission-tomography (PET). No abnormalities were found in the EEG studies (including visual and auditory evoked potentials). MRI-results were essentially normal. Brain glucose metabolism was normal, corresponding to that other male, age-matched control individuals.

Two extensive neuropsychological investigations were done 8 and 14 months after symptom onset. His IQ was above average as was short-term memory with digit spans of 9 (forward) and 6 and 7 (backward) at both testing dates. Simple attention tests were normal, more complex ones (Trail-Making Test B – TMT-B; Tombaugh, 2004) subnormal. He could not reproduce the Rey-Osterrieth Figure after 30 min. delay. (Lezak et al., 2012). Similarly, he scored poor in further tests of long-term memory, obtaining, for example, a score below 50 in the delayed-recall index of the revised Wechsler-Memory-Scale (Härting et al., 2000). In tests of retrograde memory, he was mainly normal, but was unable to identify any of 36 “famous faces” from the time of his early youth.

In repeated psychiatric interviews no evidence of personality disorder or of psychiatric alterations was found. A few weeks after the first neuropsychological examination, he entered a psychoanalytically oriented focused psychotherapy.

2.2. Patient 2

Patient 2 was a male high-school teacher of 45 years of age, who had given up his job, as he felt overwhelmed with his work. Especially, he stated that he could not maintain concentration over longer periods of time and is forgetful. He took a mild anti-depressant during the time of the investigation. He, however, was able to drive with his car over long distances.

Application of neuropsychological tests revealed normal short-term memory, but reduced attention and concentration, especially in more demanding tests (TMT-B; d2-R; Brickenkamp & Zillmer, 1998; Brickenkamp et al., 2010). While his verbal IQ was at 104, he showed a reduced performance in general screening tests of his intellect (MoCA; DemTect; Nasreddine et al., 2005; Calabrese & Kessler, 2000). Problem solving abilities and decision making appeared undisturbed. In long-term memory tests, however, he was two or more standard deviations below the norm (Wechsler-Memory-Test-Revised; Rey-Osterrieth Figure). Old memories appeared preserved.

2.3. Patient 3

Patient 3 was a female general practitioner of 54 years of age. She had had increasing problems with maintaining her practice since the start of covid-infections and stopped working at the end of the

main epidemic as she felt quickly overburdened and had increasing attacks of migraine. She complained about rapid exhaustion, disturbances of concentration, a general reduction in performance, sleeping problems and depression (against which she takes medicine). Neuropsychological testing revealed the following remarkable results: Her verbal IQ was high (130). In the complex TMT-B and in the Attention Quotient of the WMS-R she was subnormal. Problem solving ability and cognitive flexibility were normal. Contrary to the other two patients she was in the normal range in long-term memory tests (WMS-R, Rey-Osterrieth Figure), or only marginally subnormal (Doors Test; Baddeley et al., 1994). Old memories appeared preserved.

MRI revealed no conspicuities.

3. Discussion and conclusions

The three described cases have several commonalities. They show people in the middle of their life who had been successful in their professional life, but became unable to continue working. All had university education. All had problems in more complex functions of attention and concentration, requiring working memory abilities (TMT-B). Old memories appeared preserved in all three of them. Anterograde long-term memory was impaired in the two men, while the woman in general had no problems in the applied verbal and nonverbal tests. Probably her very high IQ helped her to maintain the requirements for successful encoding of information. On the other hand, she and Patient 2 had to take medicine against depression, where it can be asked whether the depressive symptoms induced the intellectual deteriorations and the inability to work, or whether the inability to work then led to the outbreak of depressive symptoms.

Though we did not follow-up the patients long-term, the inability to work apparently remained stable for years, implying a poor prognosis. All three patients, however, seemed to be less concerned about their condition than expectable. This lack of concern has parallels to the phenomenon of *belle indifférence*. *Belle indifférence* is a condition that since the end of the 19th century was associated with patients with dissociative disease conditions; it means that the patients appear paradoxically careless or unconcerned towards their own disease condition and fate. This lack of concern was found – at least in weakened form – in all three patients. Again, the question is, whether the condition of *belle indifférence* appeared as a consequence of initiative and the patients' weariness and weakness, or whether it was existing from the start and subsequently led to the changed behavioral pattern.

The main question refers to the etiology of this disease. Is it a consciously made decision to make life easier and refrain from the stress of working? Or are there certain predispositions, and if so, are they in acquired character or in genetic predispositions? In other words, is it a “free” decision of the patient to refrain from working? Or is there an accumulating burden of tasks which makes life less and less bearable? These questions dig into the territory of philosophy. But they also touch the patient's personality and developmental aspects.

We consider it likely that there is a gradual multifactorial development of the disease condition. The personality structure of the patient certainly plays a major role, together with some genetic factors. Environmental variables add to the likelihood of developing a changed personality structure. Among the environmental variables, stress is a major one. This had also been found in patients with dissociative amnesia (Markowitsch, 1999; DSM-5; Staniloiu et al., 2020; Palamarchuk et al., 2023) and underlines similarities between the two disease conditions. Stress leads to an overflow of stress hormones (Bremner, 2005; Lupien et al., 2009) and changes the hypothalamic–pituitary–adrenal axis (Heim et al., 2008), blocking the retrieval of stress-related memories (Markowitsch, 2002; Staniloiu & Markowitsch, 2015; Wolf, 2009). Especially stress, induced by traumatic events during childhood or youth, seems to result in a long-term change in the brain's response to further stress situations later in life (Spiegel et al., 2013; Staniloiu & Markowitsch, 2014; Markowitsch & Staniloiu, 2016).

There is much evidence in all of our patients that they suffered from major episodes of stress in their past life. And we postulated in what we termed the ‘two-hit hypothesis’ (Staniloiu & Markowitsch, 2014) that two or more major stress- or trauma-episodes can lead to dissociative amnesia. Similarly, we now would extend this hypothesis to cover the type of patients described herein as well. Along this line, we argue that these patients do not have a reduced will – at least not consciously – but just do not have the possibility to make enough effort long-term.

References

- Baddeley, A., Emslie, H., & Nimmo-Smith, I. (1994). *Doors and People Test*. Bury St. Edmunds, England: Thames Valley Test Company.
- Barry, T. J., Hallford, D. J., & Takano, K. (2021). Autobiographical memory impairments as a transdiagnostic feature of mental illness: A meta-analytic review of investigations into autobiographical memory specificity and overgenerality among people with psychiatric diagnoses. *Psychological Bulletin*, *147*(10), 1054-1074.
- Bleuler, E. (1911). *Lehrbuch der Psychiatrie*. Berlin: Springer.
- Brand, M., Eggers, C., Reinhold, N., Fujiwara, E., Kessler, J., Heiss, W.-D., & Markowitsch, H. J. (2009). Functional brain imaging in 14 patients with dissociative amnesia reveals right inferolateral prefrontal hypometabolism. *Psychiatry Research: Neuroimaging Section*, *174*(1), 32-39.
- Bremner, J. D. (2005). Effects of traumatic stress on brain structure and functions: relevance to early responses to trauma. *Journal of Trauma and Dissociation*, *6*(2), 51-68.
- Brickenkamp, R., Schmidt-Atzert, L., & Liepmann, D. (2010). *Test d2 – Revision*. Göttingen: Hogrefe Test Verlag.
- Brickenkamp, R., & Zillmer, E. (1998). *The d2 Test of Attention*. Seattle, WA: Hogrefe & Huber.
- Calabrese, P., & Kessler, J. (2000). *DemTect*. Frankfurt: EISAI and Karlsruhe: Pfizer.
- Donix, M., Brons, C., Jurjanz, L., Poettrich, K., Winiecki, P., & Holthoff, V. A. (2010). Overgenerality of autobiographical memory in people with amnesic mild cognitive impairment and early Alzheimer's disease. *Archives of Clinical Neuropsychology*, *25*(1), 22-27.
- DSM-5 (American Psychiatric Association, Ed.). (2013). *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- Fujiwara, E., Brand, M., Kracht, L., Kessler, J., Diebel, A., Netz, J., & Markowitsch, H. J. (2008). Functional retrograde amnesia: a multiple case study. *Cortex*, *44*(1), 29-45.
- Härting, C., Markowitsch, H. J., Neufeld, H., Calabrese, P., Deisinger, K., & Kessler, J. (2000). *Die Wechsler-Memory-Scale Revised. Deutschsprachige Adaptation*. Bern: Huber.
- Heim, C., Mletzko, T., Purselle, D., Musselman, D. L., & Nemeroff, C. B. (2008). The dexamethasone/corticotropin-releasing factor test in men with major depression: role of childhood trauma. *Biological Psychiatry*, *63*(4), 398-405.
- Irle, E., Kessler, J., Markowitsch, H. J., & Hofmann, W. (1987). Primate learning tasks reveal strong impairments in patients with presenile or senile dementia of the Alzheimer type. *Brain and Cognition*, *6*(4), 429-449.
- Lezak, M. D., Howieson, D. B., Bigler, E. D., & Tranel, D. (2012). *Neuropsychological assessment* (5th ed.). New York: Oxford University Press.
- Lucchelli, F., Muggia, S., & Spinnler, H. (1995). The 'Petit Madelaines' phenomenon in two amnesic patients. Sudden recovery of forgotten memories. *Brain*, *118*(Pt 1), 167-183.
- Lupien, S. J., McEwen, B. S., Gunnar, M. R., & Heim, C. (2009). Effects of stress throughout the lifespan on the brain, behavior and cognition. *Nature Reviews Neuroscience*, *10*, 434-445.
- Markowitsch, H. J. (1999). Stress-related memory disorders. In L.-G. Nilsson & H. J. Markowitsch (Eds.), *Cognitive neuroscience of memory* (pp. 193-211). Göttingen: Hogrefe.
- Markowitsch, H. J. (2002). Functional retrograde amnesia – mnesic block syndrome. *Cortex*, *38*(4), 651-654.
- Markowitsch, H. J., Kessler, J., Schramm, U., & Frölich, L. (2000). Severe degenerative cortical and cerebellar atrophy and progressive dementia in a young adult. *Neurocase*, *6*(4), 357-364.
- Markowitsch, H. J., & Staniloiu, A. (2016). Functional (dissociative) retrograde amnesia. In M. Hallett, J. Stone & A. Carson (Eds.) *Handbook of clinical neurology (3rd series): Functional neurological disorders* (pp. 419-445). Amsterdam: Elsevier.
- Markowitsch, H. J., & Staniloiu, A. (2022). Behavioral, neurological and psychiatric frailty of autobiographical memory. *WIREs Cognitive Science*, *e1617*, 1-27. <https://doi.org/10.1002/wcs.1617>
- Maudsley, H. (1870). *Body and Mind: An inquiry into their connection and mutual influence, specially in reference to mental disorders*. London: Macmillan.
- Nasreddine, Z., Phillips, N. A., Bédirian, V., Charbonneau, S., Whitehead, V., Collin, I., Cummings, J. L., & Chertkow, H. (2005). The Montreal Cognitive Assessment, MoCA: A brief screening tool for mild cognitive impairment. *Journal of the American Geriatrics Society*, *53*(4), 695-699.
- Palamarchuk, I. S., Slavich, G. M., Vaillancourt, T., & Rajji, T. K. (2023). Stress-related cellular pathophysiology as a crosstalk risk factor for neurocognitive and psychiatric disorders. *BMC Neuroscience*, *24*(65). <https://doi.org/10.1186/s12868-023-00831-2>

- Pietrini, P. (2003). Towards a biochemistry of mind? *The American Journal of Psychiatry*, *160*(11), 1907-1908.
- Schagen, S., Schmand, B., de Sterke, S., & Lindeboom J. (1997). Amsterdam Short-Term Memory Test: A new procedure for the detection of feigned memory deficits. *Journal of Clinical and Experimental Neuropsychology*, *19*(1), 43-51.
- Seidl, U., Lueken, U, Thomann, P. A., Geider, J., & Schröder, J. (2011). Autobiographical memory deficits in Alzheimer's disease. *Journal of Alzheimer's Disease*, *27*(3), 567-574.
- Spiegel, D., Lewis-Fernandez, R., Lanius, R., Simeon, D., & Friedman, M. (2013). Dissociative disorders in DSM-5. *Annual Reviews of Clinical Psychology*, *9*, 299-326.
- Staniloiu, A., Kordon, A., & Markowitsch, H. J. (2020). Stress- and trauma-related blockade of episodic-autobiographical memory processing. *Neuropsychologia*, *139*(Art. 107364). doi: 10.1016/j.neuropsychologia.2020.107364
- Staniloiu, A., & Markowitsch, H. J. (2010). Understanding psychogenic amnesia and psychiatric disorders as causes of dementia. *Journal of General Medicine*, *22*, 41-49.
- Staniloiu, A. & Markowitsch, H. J. (2012). Towards solving the riddle of forgetting in functional amnesia: Recent advances and current opinions. *Frontiers in Psychology*, *3*(Art. 403), 1-23.
- Staniloiu, A., & Markowitsch, H. J. (2014). Dissociative amnesia. *Lancet Psychiatry*, *1*(3), 226-241.
- Staniloiu, A., & Markowitsch, H. J. (2015). Amnesia, psychogenic. In J. D. Wright (Ed.), *International encyclopedia of the social and behavioral sciences* (Vol. 1, pp. 651-658). Oxford: Elsevier Science.
- Staniloiu, A., Markowitsch, H. J., & Kordon, A. (2018). Psychological causes of amnesia: A study of 28 cases. *Neuropsychologia*, *110*, 134-147.
- Tombaugh, T. N. (1996). *Test of Memory Malingering (TOMM)*. New York: Multi Health Systems.
- Tombaugh, T. N. (2004). Trail Making Test A and B: Normative data stratified by age and education. *Archives of Clinical Neuropsychology*, *19*(2), 203-214.
- Wolf, O. T. (2009). Stress and memory in humans: Twelve years of progress? *Brain Research*, *1293*, 142-154.