Essay

Faking Amnesia and How to Detect It

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Abstract

Malingering amnesia is a phenomenon in which patients simulate or exaggerate their symptoms of memory loss. The purpose behind faking amnesia is usually for financial gain through insurance fraud or avoiding criminal punishment. This essay outlines the various tests available to detect patients who may be simulating *anterograde amnesia* (inability to learn new information) and *retrograde amnesia* (inability to remember information about the past). Faking amnesia has been linked to increased brain activity in the prefrontal cortex of the brain, and increased pupil dilation. On tests of chance, simulators tend to remember the correct answer and deliberately choose the wrong answer, scoring below chance and worse than the baseline of genuine amnesiacs. Patients simulating retrograde amnesia will tend to perform worse than genuine amnesiacs on tests that assess their knowledge of past events. Using a variety of these tests will give an indication of whether a patient is faking symptoms or not.

Keywords: Amnesia, faking amnesia, tests of chance.

Introduction

A patient's deliberate falsification of symptoms is known as malingering. Such simulation or exaggeration of symptoms is usually associated with financial gain, such as increased insurance claims (Binder and Rohling, 1996). It may also occur if the patient is faced with criminal charges; for example, in 1994, 29% of all criminals sentenced to life imprisonment claimed amnesia at their trials and later some admitted feigning their memory loss (Pyszora et al., 2003). Faking amnesia is undoubtedly one way to avoid financial obligations or criminal punishment, and so this article aims to outline ways to detect patients who may be simulating their symptoms.

The two types of amnesia

There are two different types of amnesia caused by brain damage or psychological trauma. Firstly, *retrograde amnesia* refers to an inability to remember anything that happened before the onset of the injury. The patient may still remember certain aspects of their life, such as their name or how to ride a bike, but the patient has no recollection of specific events or personal experiences. For instance, a patient may remember that they went to school, but have forgotten everything about the school itself, including information about events attended or information about schoolmates. Secondly, *anterograde amnesia* is the inability to learn something new. In popular media this is often incorrectly referred to as short-term memory loss. Patients with anterograde amnesia have a very short attention span and will forget any newly learned information once their attention shifts.

If a patient claims to suffer from retrograde or anterograde amnesia, despite brain scans revealing no injury, this is itself no indication of malingering. The injury sustained may simply have gone undetected, or the patient may be suffering from amnesia for psychological reasons such as trauma or stress, known as functional amnesia. Tests for anterograde amnesia are plentiful, with several tests specifically designed to detect malingering. For retrograde amnesia, fewer tests exist and malingering is much harder to identify.

General tests for detecting malingering

The tests specifically aimed at detecting malingering in patients are referred to as Symptom Validity Tests (SVT) and often involve chance. Patients who feign their performance tend to neglect the properties of chance and tend to perform below chance level, while genuine brain injury patients perform at chance level or above. One such test is the Test of Memory Malingering (TOMM), which aims to detect malingering without giving patients cues as to the nature of the test (Tombaugh, 1997). Another is the Word Memory Test (WMT; Green, Allen and Astner, 1996), which assesses verbal memory using pair-word recognition tasks, as well as consistency with delayed recognition tasks (Green et al., 2003). In other words, a patient with amnesia will display consistently bad performance on memory tasks, but a malingerer is likely to vary their performance and also score below chance.

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Teichner and Wagner (2004) argue that the TOMM is only a useful measure for detecting malingering if dementia is ruled out, as the test is sensitive to the cognitive dysfunction associated with dementia. This was illustrated by Staniloiu and Markowitsch (2012), who reported a patient that scored below chance on several malingering detection trials, but the authors attributed this to global cognitive deterioration or that the patient did not understand the instructions.

The MMPI-2 Fake Bad Scale (FBS) is a true/false statement test sensitive to paradoxical claims, which can assess whether a patient is exaggerating their responses (Lees-Haley et al., 1991). A meta-analysis by Nelson et al., (2006) concluded that the FBS is an adequate measure of malingering detection. Again, people who feign amnesia will perform particularly poor on such tests, deliberately creating a weak performance which is actually lower than chance. A study by Hashish et al. (2011) further compared the FBS with other measurements of malingering in head injury claims and found that the FBS is the most effective scale for detecting malingerers. However, Meyers and Volbrecht (2003) argue that the best malingering detection tests are those that can perform double-duties, meaning the tests can also assess some cognitive function in patients with genuine neurological impairments. They argue that there are two tests –the Forced Choice Test (Hiscock and Hiscock, 1989) and the Portland Digit Recognition Choice Test (Binder, 1993)– both of which are used to detect malingering, but are otherwise useless for neuropsychological evaluations. McCaffrey and Weber (1999) argue that, while malingering assessment is still a somewhat inaccurate science, a combination of measurements are best to assess malingering in patients, especially if the patient has potential external gains by simulating.

Neuro-imaging and physiological techniques

As malingering involves deception, some neuro-imaging studies suggest that fMRIs may aid malingering detection: Spence et al. (2004) found that deception depends on activation of key brain structures such as the ventro- and dorsolateral prefrontal cortex, while Browndyke et al. (2008) also found that on tests such as TOMM deception was associated with increased brain activity and slower response time. This is similar to the results of a test van Hooff et al. (2009) in which simulators (participants told to mimic symptoms of amnesia) showed slower and more variable reaction times on a memory task. However, brain-imaging measures cannot establish with certainty if malingering is occurring as mediating factors may be at play; i.e. impaired executive control as a

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result of psychological stress is causally linked to dysfunctional autobiographical retrieval (Fujiwara et al., 2008; Kopelman, 2000).

Heaver and Hutton (2010) measured pupil size during a memory task and found that, during the recognition stage, the pupil was larger when old items were presented in comparison to new items. As all participants were told to feign amnesia, the authors argue that pupil size measurement may be an indicator of malingering as it is an unconscious action. However, as this study did not compare the results with brain injured patients it is not clear if this effect prevails in genuine amnesia cases.

Tests for detecting malingering in anterograde amnesia

Suspicion of malingering with anterograde amnesia usually involves a patient scoring below chance on forced choice tests (Jelicic et al., 2004) or below the baseline of patients with amnesia as a result of acquired brain injury, known as organic amnesia (Greiffenstein et al., 1994). Since anterograde amnesia is the inability to remember new information, a large variety of tests are available.

With the help of an insurance company, Greiffenstein et al. (1994) identified probable malingering patients and compared their results with objectively brain-injured patients on a variety of tests. They found that the traditional Wechsler Memory Scale (Wechsler, 1945) and its revised edition were unable to detect differences between malingering patients and brain-injured patients. In contrast, the Rey Auditory Verbal

Learning Test (AVLT; Invik et al., 1990) displayed significant differences between malingering and brain-injured patients on free recall, delayed recall, and recognition, with malingering patients performing poorly by comparison. The AVLT is a five-trial learning procedure in which participants read a list of fifteen words followed by free recall. Subsequently, a second word list is read and recalled before finally the initial list is recalled again, which allows for a measure of interference. As patients who fake amnesia tend to exaggerate their symptoms, they perform worse on this task than patients with organic amnesia.

Greiffenstein et al. (1994) also conducted a series of tests: Rey's Word Recognition List (Lezak et al., 2004) involves recognising previously presented words; Rey's 15-item Memory Test (Lezak et al., 2004) has the participant drawing symbols from memory; the Portland Digit Recognition Test (Binder, 1993) involves remembering words through different trials of backwards counting; and

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the Reliable Digit Span is a serial recall task forwards and backwards. On all of these tests it was found that suspected malingerers scored poorly compared to brain injured patients. To assist clinicians in assessing malingering in patients, Greiffenstein et al. (1994) suggested a conservative rule of suspicion when performance was 1.3 standard deviations below an objective brain injury baseline. Nevertheless, they warned that this included a 10% chance of false negatives.

Greiffenstein et al. (1994) warned against labelling malingering too early as there are third variables that can account for poor performance. Previous neurological conditions, such as being in a coma or suffering from internal brain haemorrhaging can reduce cognitive performance (Schretlen et al., 1991). Another complication can arise if a patient has existing brain damage while simultaneously exercising malingering. The motivation behind this may be increased financial restitution following an initial injury. However, this phenomenon is incredibly rare: only 9% of brain injured patients perform worse than poor-performing malingering patients (Binder, 1993).

Hanley et al. (1999) found that the coin-in-the-hand task (Kapur, 1994) is a good indicator of malingering in amnesia patients. During this task, the participants briefly observe which hand is holding a coin. They are then asked to count backwards from 10 before they are asked which hand the coin was in. It was found that organic amnesiacs score excellently on this task, while simulators score only at chance level or below. Another test used was the distraction/no distraction task (Baker et al., 1993) where participants read words from cards, followed by either a silent pause or backwards counting. Finally, participants are asked to recall the word items based on semantic cues. Hanley et al. (1999) found that simulators perform poorly compared to controls and organic amnesiacs on this task, which again supports the idea that patients who fake their condition tend to exaggerate their symptoms and perform worse than patients with genuine amnesia.

A more implicit measure of malingering is to see if the patient shows the usual primacy and recency effect in free recall. The primacy effect is the tendency to remember the first item in a list of items in a memory test, while the recency effect involves remembering the final item in the list. Wiggins and Brandt (1988) found that patients with genuine amnesia will not show a primacy effect while simulators do. Such indicators can be useful as the results are difficult for malingerers to fake.

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Tests for detecting malingering in retrograde amnesia

It is more problematic to assert whether a patient is feigning retrograde amnesia as this involves loss of memory prior to the onset of the condition. The variables in question are therefore largely out of the examiner's control. For this reason, there are relatively few tests that show promise of malingering detection within retrograde amnesia assessment. Kapur (1999) argues that this is because retrograde amnesia is less frequently reported by patients compared to anterograde amnesia (presumably because it is harder to fake), and for this same reason there is also little research on the topic. The difficulty in detecting malingering is further convoluted by the possibility of unconscious (or hysterical) malingering, where the patient, in a sense, is self-sabotaging their own performance without realising it (Ross, 2000).

Tests that specifically aim at assessing retrograde amnesia with malingering in mind are rare. Jenkins (2009, cited in Jenkins et al., 2009) is one of few studies to compare performance between brain injured patients, controls, and instructed malingerers on retrograde amnesia. Among the tests used was the Autobiographical Memory Interview (AMI), which uses samples of personal semantic memories across the lifespan, such as information from schooldays (Kopelman et al., 1989). Another test was the dead/alive test, which is a test of recognising whether a famous person is still alive or dead, and if the participant knows the circumstances of the death (Kapur et al., 1992). Jenkins (2009) found that malingerers typically scored lower on both the AMI and the dead/alive test compared to brain injured patients. This suggests that malingerers can be detected using these two tasks, though one aspect that has not been investigated is whether malingerers will score differently than patients with functional retrograde amnesia (amnesia due to psychological reasons) on these tasks.

There are other tests designed to assess retrograde amnesia, such as the Famous Events Tests (Leplow and Dierks, 1997, cited in Fujiwara et al., 2008), which involve recall and recognition of public news events. However, few tests have been used in the context of malingering retrograde amnesia patients. Even if strong suspicions occur it is difficult to make accurate conclusions without patient confessions, which again are rare. Fujiwara et al. (2008) tested five patients on a series of memory tests and strongly suspected that one of the patients was simulating functional retrograde amnesia, but was unable to conclude with conviction without the patient's confession. Their studies suggested that patients with retrograde amnesia may also perform poorly on theory of mind tasks, which may be linked to poor autobiographical memory recall. Jenkins et al. (2009) argue that more

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research is needed on standardised measures to distinguish performances between organic, functional, and malingering amnesia before malingering can be reliably detected in retrograde amnesiacs.

Conclusion

To summarise, a wide variety of tests are available to assess malingering if a patient claims anterograde amnesia. A performance of worse than chance or below the baseline of organic amnesiacs is a cause for suspicion of malingering. Malingering in retrograde amnesia is relatively hard to assess, but there are tests available and trends suggests that simulators perform worse than patients with organic amnesia. The best way to investigate malingering is to use a combination of tests and see if the patient reliably scores below chance or the organic amnesia baseline across the tests. If so, this is strong reason to suspect the patient is feigning. While one cannot say with absolute certainty that the patient is simulating without a confession, the variety of tests available make it difficult for simulators to consistently fake the symptoms. Someone faking amnesia tends to ignore chance and is unlikely to display consistent and reliable symptoms throughout different test. In tests of chance, simulators tend to remember the correct answer and deliberately choose the wrong one, while genuine amnesiacs will randomly choose an answer. Using a variety of such tests will make it very difficult for simulators to reliably fake symptoms.

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