Published in: Brain and Cognition (1996), vol. 30, issue 3, pp. 338-340
DOI: -
Status : Postprint (Author's version)

Amnesia and Emotion: A Case Study

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ABSTRACT

This study investigates several aspects of emotion in a severely amnesic patient, AC, who is clinically described to have emotionally changed since his amnesia. Two cognitive dimensions of emotions were explored: (a) general knowledge of emotion and (b) induced emotional feeling states. The results show that AC's general knowledge of emotions is normal. Furthermore, AC is able to describe changes in his expression of anger, despite his complete inability to remember a precise event of anger, before or after his amnesia. Under laboratory emotional induction, AC displays normal emotional profiles except in the "sadness" condition, where he reports clearly positive feeling states. After a 3-week delay, AC is able to retrieve substantial information, in cued recall and recognition condition, about an emotional episode. These results are discussed in the framework of recent interpretations of amnesia.

The purpose of this study is to investigate several aspects of emotion in a severely amnesic patient, AC (For a complete description of the case, see Van der Linden and Coyette, in press). Clinically, the patient is described as apathetic and emotionally flat, with a tendency to remain in a mildly positive state. He sometimes shows brief episodes of externalized anger when confronted with a difficulty. No episodes of fear or sadness could be recalled by his parents in the 7 years since AC's accident.

Two cognitive dimensions of emotions were particularly explored: (a) general knowledge of emotion and (b) induced emotional feeling states.

1. *Recognition of emotional facial expression.* AC and 10 control subjects viewed photographs of faces expressing four different emotions (anger, sadness, disgust, and joy) at different intensities and four mixed emotions (adapted from Matsumoto (1993) by Hess and Blairy, unpublished). They were asked to rate the emotion expressed by each face on seven emotional scales. Results show that AC's recognition of emotional facial expression is completely normal.

2. *General knowledge of emotions.* 2.1. Schemata about bodily sensations: AC and 5 control subjects completed a questionnaire (Philippot, 1992) regarding the intensity with which a typical person would feel a series of bodily sensations during given emotions. AC showed bodily sensation schemata similar to control subjects.

2.2. Prototypical components of emotions: AC and 7 control subjects were administered 25 sentences describing everyday situations and were asked to attribute one of seven emotions to each situation. The results indicate that AC attributes the same emotion to each prototypical situation as control subjects.

3. *Self-assessment on emotional expression.* AC and his parents were administered a self-assessment questionnaire (Maes, van.Elderen, Van der Ploeg, and Spielberger, 1987) measuring anger expression style and control. AC's parents, and AC himself, were asked to complete the

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questionnaire about AC's expression of anger before and after his amnesia. This questionnaire gives scores for externalization and internalization of anger and for control over each type of expression.

AC's parents report that AC's expression and control of anger has changed since the onset of his amnesia. More specifically, it appears that AC internalized his anger before his amnesia, whereas since his accident he externalizes it.

Furthermore, AC was able to describe this change in the expression of anger, despite his complete inability to remember any particular event involving anger, before or after his amnesia.

4. *AC's subjective feeling states under laboratory emotional induction.* AC, and 10 control subjects, were exposed to six emotional video-clips (Philippot, 1993) and a neutral one. Immediately after each video-clip, subjects reported emotional feeling states by filling the Differential Emotions Scale (Izard, Dougherty, Bloxom, & Kotsch, 1974). Before viewing the video-clips, subjects listened to 3 min of audio-taped relaxation instructions. After the first relaxation, a baseline of emotional profile for AC and the control subjects was taken. AC's memory of the video-clip was tested after the subjective measure.

A comparison between AC and the control subjects showed that AC reported a normal emotional profile in most emotional conditions. Nevertheless, in the "sadness" condition, AC reported no negative feeling states, but a clearly positive one. In fact, this profile is similar to the baseline. AC's emotional profile in the "sadness" condition would appear, then, to be abnormal.

We were interested in measuring AC's recall of an emotional episode. After a 3-week delay, AC was totally unable to spontaneously recall any information about the episodes in the laboratory or about any video-clip he had seen. Nevertheless, in cued recall and recognition condition, AC could retrieve substantial information about some video-clips. This is consistent with Hirst's diary study results (1994), showing that amnesics can recall little if anything about past episodes, but are much more efficient in cued recall or recognition.

These results are discussed in the framework of recent interpretations of amnesia.

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