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# Self-Defining and Early Childhood Memories: Subjective Intensity Rating of Memory-Related Emotions

Ornella Montebanocci\*, Paola Surcinelli, Nicolino Cesare Franco Rossi

Department of Psychology, University of Bologna, Bologna, Italy

## Email address:

ornella.montebanocci@unibo.it (O. Montebanocci), paola.surcinelli3@unibo.it (P. Surcinelli), nicolinocesare.rossi@unibo.it (N. Rossi)

\*Corresponding author

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**Abstract:** The aim of the present research was to explore the subjective rating of emotional intensity during the recall of memory-related emotions. 41 participants retrieved two different types of autobiographical memory – i.e., a self-defining memory and an earliest childhood memory – and rated the intensity of the emotions experienced during the recall of each memory (anger, sadness, fear, happiness, shame and guilt). The latency and duration times of the narratives were also collected. Self-defining memories seemed to be perceived as more intense compared to earliest childhood memories, confirming the strong emotional charge that characterizes these types of memories. Longer duration times of the narratives were also observed for self-defining memories compared to earliest childhood memories. These results lend more support to differences between self-defining and early childhood memories. They also suggest that emotional experiences associated with self-relevant memories constitute the key to the self- and other-understanding in everyday meaningful interactions as well as in a clinical therapeutic setting.

**Keywords:** Self-Defining Memory, Earliest Childhood Memory, Emotional Intensity, Subjective Rating

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## 1. Introduction

Autobiographical memory is defined as a subset of the mental representations of one's past experiences [1, 2]. According to the Self-Memory System [3, 2], autobiographical memory ensures "the psychodynamic integration" of the Self [4, 5]. Autobiographical memories also enable individuals to create a unique and coherent personal story that includes beliefs and values about one's self and others' selves [6].

The present work considers two types of autobiographical memories that are particularly important to an individual's sense of identity: self-defining memories and earliest childhood memories. Self-Defining Memories (SDMs) refer to especially significant personal events, which evoke intense emotions at the time of retrieval, and are strongly linked to other memories that reflect similar emotional and relational patterns [7]. SDMs mark a touchstone for self-understanding as they shed light on an individual's most important deep

conflicts [7, 8]. On the other hand, Earliest Childhood Memories (ECMs) come from the early years of life and, thus, are more fragmentary and less coherent compared to more recent memories [9, 10]. Nevertheless, these memories may be marked with special personal significance, for example they are linked to an individual's critical themes, and may be associated with specific, though less intense, emotional experiences (e.g., re-experience of fear or anger). SDMs and ECMs have different features, as well as specific functions. In an individual's daily life SDMs are essential in developing intimate relationships, instructing and informing others, and eliciting empathy and reassurance from others [11]. They may also play a critical role in therapeutic contexts. In a series of studies, Singer and colleagues [12, 13, 14, 7, 15] showed that the analysis of SDM memories induced by psychotherapists or spontaneously evoked by patients during clinical interviews facilitates the formulation of the case as well as the choice of the most appropriate treatment [16]. On the other hand, though fragmentary, ECMs play a critical role in self-development across different

life stages, by grounding relational and behavioural models.

While retrieving autobiographical memories, people may touch on some of the emotions experienced at the time of the event. In particular, when people recall autobiographical events, they get a feeling of reliving the moment including the emotions and of “seeing” the experience in their mind’s eye [17].

Most studies have focused on the intensity dimension as the critical factor in the emotional enhancement effect on memory [18, 19, 20]. Although SDMs and ECMs are supposed to be different in terms of the intensity due to their very nature, few studies have been conducted in the autobiographical field to confirm the differences between SDMs and SCMs regarding this particular dimension [21].

The aim of the present study was to identify differences in intensity ratings of SDM and ECM-related emotions. Four basic emotions were considered—i.e., anger, fear, happiness and sadness [22, 23, 24] as well as two self-conscious emotions—i.e., shame and guilt [25].

Given the relevance of self-defining memories and their link with an individual’s “current self”, a more intense emotional experience associated with SDMs compared to ECMs is assumed. Self-referent information should also elicit more intense emotions [26].

Age at the time of the event and behavioural variables, such as latency and narrative duration times, were also considered in comparing these two memory types. Considering the time in which a memory was formed may be central in exploring differences in emotional intensity between ECMs and SDMs. Furthermore, while latency may be an important indicator of the availability of the autobiographical knowledge, narrative time may be considered as a function of the richness of the memory trace.

## 2. Method

### 2.1. Participants

Ethical approval for the study was obtained from the Ethical Committee of the University of Bologna. The data presented here concerned 41 participants (mean age = 30; SD = 6.7, range = 20-41): 20 females (48.8%; mean age = 29.4, SD = 6.7, range = 20-39) and 21 males (51.2%; mean age = 30.57, SD = 6.9, range = 21-41). Subjects were adults who freely agreed to participate in the experiment. Socio-demographic characteristics of the sample were collected through a brief self-report questionnaire which also included dichotomous choice questions regarding the presence/absence of recent emotional stress, depression and anxiety (Table 1). To ensure the homogeneity of participants, subjects also completed the Beck Depression Inventory [BDI-II; 27] and the Satisfaction With Life Scale [SWLS; 28, 29], which are two self-administered devices for assessing the presence and severity of symptoms of depression and the global cognitive judgments of satisfaction with one’s life. The BDI-II is a 21-item scale with a four-point scale ranging from 0 to 3. The severity of depression is the sum of the

respondent’s score on each item, ranging from 0 to 63. The SWLS is a short 5-item instrument where participants indicate how much they agree or disagree with each of the 5 items using a 7-point scale ranging from 7 strongly agree to 1 strongly disagree (total score ranging from 0 to 35). Example of items are “the conditions of my life are excellent”, “if I could live my life over, I would change almost nothing”. In the present sample no clinical cut-offs were reached for BDI-II and mean scores for SWLS were 24.89 (Table 1). Differences between sex groups were tested with chi-squared statistics for all variables considered; no differences were found ( $p \geq .05$ ) except for Depression ( $\chi^2 = 7.38, p \leq .007$ ). Participants who reported a recent depressed mood were all females (14.6%, N=6) (Table 1).

**Table 1.** Socio-demographic characteristics of the selected sample and BDI and SWLS total mean scores and standard deviations.

Sex	(%)	(N)
Females	51.2	20
Males	48.8	21
Education		
Middle school	7.3	3
High-school	56.1	23
Graduate	36.6	15
Post-graduate	0.0	0
Marital status		
Unmarried	63.4	26
Married	19.5	8
Live-in partner	17.1	7
Use of drugs		
Yes	19.5	8
No	80.5	33
Depression		
Yes	14.6	6
No	85.4	35
Anxiety		
Yes	22.0	9
No	78.0	32
Recent emotional stress		
Yes	36.6	15
No	63.4	26
BDI	9.13	(1.3)
SWLS	24.89	(4.79)

N = 41.

### 2.2. Materials

Memory task. Participants were asked to recall two types of autobiographical memories: a self-defining memory (SDM) and an earliest childhood memory (ECM). An adaptation of Singer and Moffitt’s [30] SDM request was used. Participants were asked to recall a memory “that is personally meaningful to you” and “that helps you to understand who you are and how you arrived at your current identity”, without any valence or content restrictions. For ECMs, participants were asked to retrieve their very first memory from their early childhood years. No timeframe restriction was given to participants.

Memory-related emotions. For each memory, participants completed an emotion questionnaire. They were presented with a list of emotional terms—i.e., Anger, Sadness, Fear,

Happiness, Shame and Guilt. They were asked to rate on a 5-point scale (from 1 = very slightly or not at all to 5 = extremely) the intensity of each named emotion in terms of what they felt during the recall.

### 2.3. Procedure

The experimental sessions were conducted in a quiet room by a clinical psychologist. Following informed consent, each participant attended a single experimental session lasting about 40 minutes. Subjects first completed the BDI-II and the SWLS and then retrieved the SDMs and ECMs. The recollection order of SDMs and ECMs was counterbalanced across participants. After reading the memory instructions, participants had 10 minutes to report each memory. The oral descriptions were audio-taped taking note of the latency time, duration and age at the time of recalled event. Participants were then asked to complete the emotion questionnaire for each memory, referring to the emotions experienced during

recall. At the end of the experimental session, subjects were debriefed.

### 2.4. Analyses and Results

Analyses were performed with SPSS (version 20.0 for WINDOWS). A multivariate analysis of variance (MANOVA) for repeated measures was conducted on the intensity scores of the six emotions with Type of Memory (2 levels: SDMs vs. ECMs) as the within-subjects factor and Gender as the between-subjects factor. Partial eta squared and observed power were reported. The multivariate test showed a significant main effect of Type of Memory,  $F(6, 34) = 5.28, p \leq .001, \eta^2 = .56, o.p. = .995$ . Considering the univariate tests, a significant main effect of Type of Memory was found on the Anger and Fear intensity scores ( $ps \leq .05$ ). These emotions were rated as more affectively intense for SDMs compared to ECMs. No main effects or interactions involving Gender were found ( $ps > .05$ ) (Table 2).

Table 2. MANOVA Univariate Tests for behavioural measures and emotions.

	SDMs	ECMs	Main Effect of Memory
Latency	52.93 (48.86)	42.17 (26.83)	n.s
Duration	354.61 (200.4)	185.59 (87.24)	$F(1, 39) = 32.51, p \leq .001$ $\eta^2 = .003, o.p. = .064$ SDM > ECM
Age at the time of the event	20.90 (7.09)	5.20 (2.15)	$F(1, 39) = 191.5, p \leq .001$ $\eta^2 = .83, o.p. = .1$ SDM > ECM
Anger	2.78 (1.60)	1.80 (1.30)	$F(1, 39) = 7.45, p \leq .001$ $\eta^2 = .16, o.p. = .75$ SDM > ECM
Sadness	3.02 (1.86)	2.32 (1.52)	n.s
Fear	2.95 (1.60)	1.80 (1.72)	$F(1, 38) = 5.36, p \leq .05$ $\eta^2 = .102, o.p. = .53$ SDM > ECM
Happiness	2.56 (1.87)	2.15 (1.66)	n.s
Shame	1.80 (1.32)	2.02 (1.45)	n.s
Guilt	2.24 (1.48)	1.15 (.69)	n.s.

N = 41. SDMs = Self-Defining Memories; ECMs = Earliest Childhood Memories;  $\eta^2$  = Partial Eta Squared; o.p. = observed power; n.s. = not significant.

Note: latency and duration are expressed in seconds; age at the time of the event is expressed in years.

A multivariate analysis of variance (MANOVA) for repeated measures was also conducted on Latency, Duration and Age at the time of the recalled event with Type of Memory (2 levels: ECMs vs. SDMs) as the within-subjects factor, and with Gender as the between-subjects factors. Partial eta squared and observed power were also reported. A significant main effect was found for Type of Memory,  $F(2, 38) = .52, p \leq .001, \eta^2 = .47, o.p. = 1.00$ . Considering univariate tests, a significant main effect of Type of Memory was found for Duration times ( $p \leq .05$ ) and for Age at the time of the recalled event ( $p \leq .05$ ) but not for Latency ( $p > .05$ ). Longer mean times were observed for SDMs compared to ECMs for the duration of the memory report. The mean age at the time of ECMs was lower than the mean

age at the time of SDMs. Mean values and univariate tests are reported in Table 2.

## 3. Discussion

In the present study, participants were asked to report two types of autobiographical memories: a self-defining memory and an earliest childhood memory. Memories were rated for six discrete emotions, four basic emotions and two self-conscious emotions (Anger, Sadness, Fear, Happiness, Shame and Guilt). We also tested the differences between SDMs and ECMs on Age at the time of the event, Latency and Narrative duration times.

Self-defining memories seemed to be perceived as more

intense compared to the earliest childhood memories. This result demonstrates the depth of emotional power for SDMs, confirming the strong emotional charge that characterizes these types of memories [7]. Indeed, SDMs are critical memories deeply related to an individual's current self and goals [9]. By contrast, though personally relevant, emotions evoked by ECMs appear more likely to be faded, possibly due to the effect of time [35, 20]. As suggested in literature [32], memories laid down in early childhood may be also involved in larger reconstructive defensive processes (e.g. repressive coping style). In our sample, reconstructive processes may have modified affective intensity over time. Some evidence suggests that, within personality characteristics, defensive styles are related to the affective nature of childhood memories, leading to a reduced negative affect [33, 34]. It would be interesting to explore how defensive psychological functioning shapes the ability to detect discrete emotional states characterizing shared autobiographical memories. Future studies could include the evaluation of individual differences in defensive coping styles.

Our data show that the emotions associated with SDMs appear to be perceived as more intense than emotions associated with ECMs. Specifically, intensity ratings were higher for anger and fear, which are two powerful emotions that characterize crucial life experiences and are often associated with unresolved conflicts. They are also difficult emotions to deal with and highly intense by their very nature compared to emotions that share the same negative valence [22, 24].

We found that SDMs were more likely to be from late adolescent periods and early adulthood, than during childhood. According to Conway and colleagues [1, 3, 31], most of the memories from this period usually form an enduring relation with the self, becoming self-defining experiences and preserving self-coherence over time. On the other hand, in our sample, the participants' earliest memories originated from early childhood. They were mainly connected to the age of five years and their distribution was consistent with *childhood amnesia*. As reported in literature, memories formed earlier than five years age are less likely to be reminisced [36, 37, 31].

Finally, longer durations were found for SDMs than for ECMs. This seems to show that not only was there a significant difference in the self-reported intensity of emotions, but SDMs and ECMs also differed with respect to the duration of the memory narrative. SDMs take longer to narrate and longer durations can be a function of the richness of the memory trace and the complexity of the reconstructive process [21].

Despite the encouraging results of the present study, a number of limitations should be highlighted. First, the data refers to a small non-clinical sample. Given that SDMs and ECMs are key factors in the clinical area, further insights should be gained considering larger sub-clinical, clinical and psychiatric samples. Self-defining memories are indeed a subtype of autobiographical memory narratives that have a

deep personal meaning and they may have significant implications for the development and maintenance of psychopathology. It would be particularly fascinating to study self-defining narratives in clinical populations over the course of a therapeutic treatment.

A broad range of emotions should also be considered to better balance the emotional valence of the emotional terms used in this study. For example introducing additional positive emotions. Future research might also consider assessing differences in subjective intensity ratings of memory-related emotions using different kinds of autobiographical memory (e.g., low point, high point and pivotal memories).

## 4. Conclusion

In conclusion, the current study provided a further validation of the uniqueness of SDMs memories in the area of autobiographical memory. Several studies have demonstrated a significant role for these memories in individuals' emotional experiences and, according to their definition, SDMs should evoke strong feelings and affects at the time of recall.

Our results confirmed that self-relevant memories formed later in life are extremely meaningful and affectively intense for participants. Specifically, intensity ratings were higher for the emotion of anger and for the emotion of fear, two powerful and demanding emotions. Moreover, this study indicated that, compared to ECMs, SDMs seemed more affectively charged reconstructions of past events as they needed longer times to retrieve. This result may account for the richness and complexity of the self-defining task.

Participants in our sample retrieved also SDMs containing episodes from the second decades of their life whereas ECMs mainly originated about the age of 5. Late adolescence is perceived as influential for the individual in forging a larger sense of self-individuation. Childhood amnesia phenomenon may account for the lack of information before the age of 5.

Additional studies are needed to reach a better understanding of why SDMs could have such an enduring and emotional hold over individuals. This is also important since SDMs are vital in everyday meaningful interactions and constitute the daily material for clinical interactions [14, 39]. The narration of personal emotionally relevant experiences from the past is essential for the development of a worthwhile therapeutic alliance and for empathic sharing between the patient and the clinician [40].

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