Short title: autobiographical memory

"My sympathetic clinician": perception of sympathy by patients with Alzheimer's disease increases when asked to provide autobiographical memories

Mohamad EL HAJ [1, 2, 3]

Philippe ALLAIN [4, 5]

Pascal ANTOINE [6]

Guillaume CHAPELET [7, 8]

Dimitrios KAPOGIANNIS [9]

Claire BOUTOLEAU-BRETONNIÈRE [10]

Karim GALLOUJ [2]

[1] Nantes Université, Univ Angers, Laboratoire de Psychologie des Pays de la Loire (LPPL - EA 4638), F-44000 Nantes, France

[2] Unité de Gériatrie, Centre Hospitalier de Tourcoing, Tourcoing, France

[3] Institut Universitaire de France, Paris, France

[4] Laboratoire de Psychologie des Pays de la Loire, LPPL EA 4638 SFR Confluences, UNIV Angers, Nantes Université, Maison de la recherche Germaine Tillion, 5 bis Boulevard Lavoisier, 49045 Angers Cedex 01

[5] Département de Neurologie, CHU Angers, Angers, France

[6] Univ. Lille, CNRS, CHU Lille, UMR 9193 SCALab - Sciences Cognitives et Sciences Affectives, F-59000 Lille, France

[7] Université de Nantes, Inserm, TENS, The Enteric Nervous System in Gut and Brain Diseases, IMAD, Nantes, France

[8] CHU Nantes, Clinical Gerontology Department, Bd Jacques Monod, F44093, Nantes, France

[9] Laboratory of Clinical Investigation, National Institute on Aging, Baltimore, MD, USA

[10] CHU Nantes, Inserm CIC04, Département de Neurologie, Centre Mémoire de Ressources et Recherche, Nantes, France

Correspondence concerning this manuscript should be addressed to: Mohamad EL HAJ, Faculté de Psychologie, LPPL – Laboratoire de Psychologie des Pays de la Loire, Université de Nantes, Chemin de la Censive du Tertre, BP 81227, 44312 Nantes Cedex 3, France. E-Mail: mohamad.elhaj@univ-nantes.fr

Abstract

Background and aims: Autobiographical memory serves to recall past personal experiences and share them with others, promoting social bonding and communication. In this study, we investigated whether encouraging patients with Alzheimer's disease (AD) to share autobiographical memories during formal neuropsychological testing may boost the patient-clinician relationship, and more specifically, the neuropsychologist's level of sympathy as perceived by patients.

Methods: We invited patients with mild AD to perform neuropsychological testing in two conditions. In one condition, we invited patients to retrieve and share two autobiographical memories after testing, while in a control condition the testing session ended without asking patients to retrieve and share any autobiographical memories. After the two conditions, patients were invited to rate the neuropsychologist's level of sympathy towards them.

Results: Analysis demonstrated that patients perceived a higher level of sympathy when their neuropsychologist invited them to retrieve and share past personal experiences.

Discussion: By inviting patients with AD to retrieve past personal experiences, clinicians can promote a sense of sharing, create a social bond and, consequently, enhance the therapeutic relationship. In other words, by inviting patients with AD to share autobiographical memories, clinicians can promote a "social glue" with their patients, boosting mutual sympathy and patients' well-being.

Keywords: Alzheimer's disease; autobiographical memory; sympathy; therapeutic relationship: neuropsychological testing

One of the great challenges of clinicians in memory clinics is to nurture the patient-clinician relationship in an environment that may be dominated by routinized practices and, sometimes, pressure to save time and costs. In this context, neuropsychologists in memory clinics strive to master not only to effectively evaluate the cognitive (dys)function of their patients, but also to cultivate a therapeutic relationship that is commonly believed to improve the experience of patients and even to yield a beneficial effect on patients' performances during neuropsychological testing. Little, if any, empirical research has attempted to explore interventions that may boost the quality of the relationship between clinicians and neuropsychologists and patients with Alzheimer's disease (AD). We thus attempted to shine a light on this basic clinical issue by investigating whether inviting patients with AD to share their personal experiences (i.e., their autobiographical memories) during neuropsychological testing may boost their perception of a sympathetic clinician. Our study was prompted by the paucity of research about mechanisms seeking to enhance the therapeutic relationship between clinicians/neuropsychologists and patients with AD, especially during neuropsychological testing, which may be perceived as threatening. Our study was also prompted by research demonstrating how sharing autobiographical memories serves to develop and maintain social relationships.

The relationship between clinicians/neuropsychologists and patients with AD can be considered as forming a dyad that shapes the outcomes of testing and rehabilitation. When this relationship is close and patients are involved in the testing and rehabilitation, patients typically become more adherent to therapy. To improve the relationship with patients during neuropsychological testing, clinicians including neuropsychologists typically strive to build a relationship based on mutual trust, sympathy, acceptance and warmth. Alike other patient-clinician relationships (1, 2), one key determinant of the quality of the interaction is the ability of clinician

to project sympathy. This sympathy can be built on the clinicians' understanding of the situation and consideration of the feelings of their patients and, ideally, on acting on this understanding to resolve the difficulties faced by patients during neuropsychological testing. Any lack of appropriate sympathy by clinicians and neuropsychologists during testing may result in poor interactions, disengagement of patients, increased emotional distress, decreased performance on neuropsychological tests and even withdrawal from the testing. Conversely, sympathy during testing decreases the patients' anxiety and increases their confidence and willingness to adhere to testing, which, ultimately, may improve their performance. Neuropsychologists who offer sympathy increase the quality of their relationships with their patients and can, thus, be perceived as trustworthy.

In social interactions, we all share stories with others, mostly about significant personal experiences from our life story, and these personal experiences are typically retrieved from autobiographical memory. Autobiographical memory serves to recall past personal experiences, integrate them into meaningful narratives, and share them with others (3). In other words, besides its function in supporting the sense of the self (4), autobiographical memory has a social function, since autobiographical retrieval allows individuals to share personal experiences with others to develop and maintain social relationships (5-11). Autobiographical memory thus helps fulfil our need to belong to a social group and experience intimacy, warmth and closeness to others. Hence, sharing autobiographical memories with others allows us to not only share our personal experiences, but also develop a sense of intimacy and social belonging.

The social function of autobiographical memory can also serve patients with AD. In other words, sharing autobiographical memories can help patients with AD enhance their social engagement. Recollecting personal memories from their lives may help patients with AD to

reevaluate and talk about their past experiences, as well as educate and advise others. Theories about reminiscence hold that autobiographical retrieval (especially, in older adults) has a social function, since sharing autobiographical memories may 1) promote bonding, and 2) help educate others, especially the younger generation, about past experiences (12-14). Autobiographical memories may, therefore, be used by patients with AD to connect and transmit personal experiences and life lessons to others. This assumption can be supported by research demonstrating that autobiographical retrieval allows patients with AD to share memories that define their life story (15-19). Autobiographical retrieval can provide patients with AD with a sense of purpose, continuity, and meaning, as well as with a better understanding of both their selves and the world (20, 21). Autobiographical retrieval can, therefore, help patients make sense of the past and present, share experiences with others, thereby strengthening a "social glue".

We hypothesized that encouraging patients with AD to share their autobiographical memories during neuropsychological testing would promote a perception of clinicians as sympathetic, strengthening the therapeutic relationship.

Method

Participants

The study included sixty-two participants that were equally divided into two groups (i.e., a group assigned to the autobiographical condition "autobiographical group" vs. a group assigned to the control condition). When assigning participants to the two conditions, we were careful to match the two groups regarding age, gender, and educational level (see Table 1 for demographic data). All participants had a diagnosis of mild amnestic form of AD dementia, made by an experienced neurologist or geriatrician based on criteria by the National Institute on Aging-

Alzheimer's Association (22). All participants were native French speakers. Exclusion criteria were the presence of neurological or psychiatric illness (other than AD), and major visual or auditory acuity difficulties that could prevent adequate assessment. The study was conducted in accordance with the principles of the Declaration of Helsinki. All participants provided formal consent and were able to withdraw whenever they wished.

INSERT TABLE 1 HERE

Procedures and materials

Procedures included neuropsychological testing, followed by autobiographical retrieval (only in the autobiographical condition). At the end of autobiographical and control conditions, participants were invited to rate the sympathy of the neuropsychologist who carried out the assessment. All assessments were carried out by the same neuropsychologist who has a degree in clinical neuropsychology and eight years of experience in neuropsychological assessment in memory clinics. The neuropsychologist wore the same white medical coat during both conditions.All assessments were carried out in the same memory clinic and the same office to exclude any potential effects of the environment.

Neuropsychological testing

Neuropsychological testing included tests of general cognitive functioning, episodic memory, working memory, inhibition and depression; the order of testing was randomized. Scores are summarized in Table 1. Note that this testing mirrors standardized neuropsychological assessments that are widely used for cognitive assessment of AD patients in memory clinics, at least in France (although, due to time constraints, we had to exclude other tests, such as verbal

fluency). Also note that we assessed inhibition as this cognitive process is considered as a major executive function (23).

General cognitive functioning

General cognitive functioning was evaluated with the Mini Mental State Exam (24), which includes test of spatiotemporal orientation, registration, attention and calculation, as well as memory, language and visual construction (maximum score = 30 points).

Episodic memory

Episodic memory was evaluated with a French version (25) of the episodic task of Grober and Buschke (26), in which participants had to retain 16 words, each describing an item belonging to a different semantic category. Immediate cued recall was succeeded by a distraction phase, during which participants had to count backwards from 374 in 20s. This distraction phase was succeeded by two minutes of free recall and the score from this phase provided a measure of episodic recall (16 points maximum).

Working memory

Working memory was evaluated with the digit span tasks. Participants were asked to repeat a string of single digits in the same order (i.e., forward spans) or in reverse order (i.e., backward spans). Scores referred to the number of correctly repeated digits.

Inhibition

Inhibition was evaluated with the Stroop Color Word Test, including three tasks: word-reading, color-naming and color-word interference. In the first task, patients were asked to read 100 color names printed in black ink. In the second task, patients had to name the color of 100

colored ink squares. In the third (i.e., interference) task, we invited patients to name the color of 100 color-words printed in incongruously colored ink (for instance, the word "yellow" was written in red). The interference score referred to the average completion time for the interference task minus the average completion time for the first and second tasks, with higher scores indicating lower inhibition.

Depression

We used the Hospital Anxiety and Depression Scale (27) which consists of seven items that were scored by participants on a four-point scale ranging from 0 (not present) to 3 (considerable). The maximum score was 21 points.

Autobiographical memory

After the neuropsychological testing, the neuropsychologist told patients "Before we end the assessment, I would like to learn about you, about your experiences and your life story. I would like you to tell me about an event in your life. You may wish to tell me about any personal event, regardless of its topic or where and when it happened, as long as it is a specific event. Note that a specific event is an event that lasted no more than a day, took place at a specific time and place and evoked some feelings". Participants had no time limit to retrieve their memories. If the participants had difficulties in choosing an event to talk about, the neuropsychologist clarified that they could talk about an event related to their family, their work or a holiday. These cues, and the autobiographical instruction in general, were used as they easily elicit autobiographical memories in patients with AD (28-32). During spontaneous retrieval, the neuropsychologist was careful not to interfere; however, once participants stopped talking, the neuropsychologist encouraged them to add any other information they could remember. If the participants had nothing to add, the

neuropsychologist invited them to retrieve a second memory, using the same wording as before. After retrieval of the two memories, the neuropsychologist thanked participants for sharing their memory and informed them that the session had ended and that they can leave the office and wait at a room situated at the same floor. Unlike the autobiographical condition, no autobiographical retrieval was elicited in the control condition. Thus, in the control condition, after the neuropsychological testing, the neuropsychologist informed participants that the session had ended and that they can leave the office and wait at a room situated at the same floor.

Sympathy rating

When leaving the neuropsychologist's office, participants were accompanied by a nurse to the waiting room and were invited to fill a paper-and-pencil questionnaire. The questionnaire indicated that the memory clinic is interested in learning about the patient's experience during the cognitive assessment and about the quality of the interaction between the patient and the clinician (i.e., the neuropsychologist). The questionnaire indicated that the answers were anonymous and that, when finished, participants can return the completed questionnaire into a box in the waiting room. More specifically, the questionnaire asked participants to rate three items on a five-point scale (1 = not at all, 2 = slightly, 3 = moderately, 4 = quite a bit, 5 = extremely). The three items were: Item1 = "the clinician was sympathetic", Item2 = "the clinician made me feel at ease" and Item3 = "the clinician was interested in me as a person". The participants stayed for nearly fifteen minutes in the waiting room and then were accompanied by the nurse to meet other clinicians or return to their homes.

Statistical analysis

To test our hypothesis, we compared ratings for the three sympathy items between the autobiographical group and control group (as shown in Table 2). Comparisons were conducted using Wilcoxon signed rank tests because Shapiro-Wilk tests showed non-normal distributions for the variables (not surprisingly because data was scalar). We calculated effect sizes by using Cohen's *d* (33) for non-parametric tests according to the recommendations of Rosenthal and DiMatteo (34), and Ellis (35) (0.20 = small, 0.50 = medium, 0.80 = large). For all tests, the level of significance was set as $p < 0.05$.

Results

Autobiographical retrieval increases sympathy

Analysis demonstrated higher rating in the autobiographical group than in the control group for Item1 ("the clinician was sympathetic") ($Z = -2.93$, $p = .003$, Cohen's $d = .80$), Item2 ("the clinician made me feel at ease") ($Z = -2.55$, $p = .011$, Cohen's $d = .68$), and Item3 ("the clinician was interested in me as a person") ($Z = -2.82$, $p = .005$, Cohen's $d = .77$). No differences were seen between ratings of the three sympathy items within each condition using Wisconsin tests.

INSERT TABLE 2 HERE

Discussion

The patient-clinical relationship is a fundamental aspect of any clinical situation. To our knowledge, this is the first study on the effects of asking patients to relate an autobiographical memory on the quality of the relationship. More specifically, we found that inviting patients with AD to share their autobiographical memories following neuropsychological testing enhances their perception of the clinician as sympathetic. Results demonstrate that enhanced sympathy may be experienced by patients when clinicians invite them to share their past personal experiences.

Our study demonstrates how inviting patients with AD to retrieve and relate autobiographical memories may enhance the clinicians' image as sympathetic, and potentially the patients' overall experience, at least regarding neuropsychological testing. Inviting patients with AD to share their personal experiences can allow patients to "feel at ease" and make them feel that their clinicians are interested in them. Indirectly, by asking their patients with AD to retrieve and talk about autobiographical memories, clinicians can help them make sense of their past and present and enhance their self-expression and self-esteem. Furthermore, this shared experience can enhance social bonding and improve the therapeutic relationship.

Our findings can be viewed from the larger perspective of person-centered medical care. It is well known that personalization is increasingly being recognized as central to achieving good medical outcomes. A large body of research demonstrates that "sympathetic" healthcare professionals can improve patients' conditions and adherence to therapy (36-40). In a person-centered care model, a core quality of healthcare professionals is their ability to adopt the patients' point of view and experience the patients' feelings and concerns (36-40). In our view, this person-centered care model can be enriched by taking into account the patients' autobiographical experiences. By building on the autobiographical experience of patients, clinicians may gain a better appreciation of the patients' experiences and be able to better meet their needs. This enhanced understanding of the patients' experiences can lead to fewer communication problems, and consequently, to a better therapeutic relationship. In the case of AD, when clinicians invite patients to share their past personal experiences, patients may feel as being important, in the sense that their personal history, current situation, perspective and feelings are being acknowledged and appreciated by their clinicians. The resulting enhanced patient-clinician relationship may also have therapeutic value, according to the person-centered medical care model.

By focusing on the patient-clinician relationship, our study differs from previous research on autobiographical memory in AD. This research has demonstrated that, compared with healthy older adults, patients with AD demonstrate difficulties in retrieving unique memories situated in time and space (17, 32, 41-45). This diminished ability to retrieve specific autobiographical memories in AD may lead to a shift from reliving past events to a general sense of familiarity (20, 21). However, despite this sense of familiarity, patients with AD can enjoy, to some extent, the subjective experiences (especially, the emotional experiences) triggered by autobiographical retrieval (46, 47). Also, patients with mild AD can build upon significant personal events and experiences to reflect on how these events have changed the way they see themselves (17, 48). In other words, patients with mild AD can be able to retrieve autobiographical memories and share them with others. As demonstrated by the present study, this sharing experience may provide a "social glue" that may boost the patient-clinician relationship.

One potential limitation of our study is that findings may be applied narrowly, only to neuropsychological testing conducted in memory clinics, limiting generalization of results. Our study focused on a stereotypical clinical interaction (neuropsychological testing) in a specific setting (memory clinic), although we believe that results may be generalizable to, at least, similar settings (e.g., cognitive testing and/or rehabilitation sessions in retirement homes). Wider applications of the paradigm tested here can be considered by future research. Another possibility for future research would be an investigation of effects of autobiographical retrieval on *subsequent* neuropsychological testing performance. One may expect that, thanks to its positive effects on the patient-clinician relationship, autobiographical retrieval may enhance a patient's self-esteem, and consequently, their neuropsychological performance.

The relationship developed between neuropsychologists and patients undergoing neuropsychological testing can be negatively impacted by the length of testing, patients' fatigability, the routinization potentially experienced by the clinician, and institutional factors (including pressure to save time and reduce costs). Nevertheless, clinicians and neuropsychologists striving to cultivate a high-quality therapeutic relationship with patients, within a person-centered care model, may invite patients with AD to share autobiographical memories with them. Characteristically, a participant in the autobiographic group in this study, added her own words to the sympathy scale rating: "the clinician took time out and listened to me".

Compliance with Ethical Standards

Conflict of interest: The authors declare no conflict of interest.

Ethical approval: The study was approved by the local CPP

Informed consent: Prior to participate, participants provided informed consent.

Acknowledgements

Mohamad EL HAJ & Pascal ANTOINE were supported by the LABEX (excellence laboratory, program investment for the future) DISTALZ (Development of Innovative Strategies for a Transdisciplinary approach to Alzheimer disease). Dimitrios KAPOGIANNIS was supported entirely by the Intramural Research Program of the National Institute on Aging, National Institutes of Health.

References

1. Wittenberg-Lyles E, Debra PO, Demiris G, Rankin A, Shaunfield S, Kruse RL. Conveying empathy to hospice family caregivers: team responses to caregiver empathic communication. Patient Educ Couns. 2012;89(1):31-7.

2. Neumann M, Wirtz M, Bollschweiler E, Mercer SW, Warm M, Wolf J, et al. Determinants and patient-reported long-term outcomes of physician empathy in oncology: A structural equation modelling approach. Patient Education and Counseling. 2007;69(1):63-75.

3. Fivush R, Habermas T, Waters TE, Zaman W. The making of autobiographical memory: intersections of culture, narratives and identity. Int J Psychol. 2011;46(5):321-45.

4. Conway MA. Memory and the self. Journal of Memory and Language. 2005;53(4):594-628.

5. Bluck S, Alea N. Crafting the TALE: construction of a measure to assess the functions of autobiographical remembering. Memory. 2011;19(5):470-86.

6. Bluck S, Alea N. Thinking and talking about the past: Why remember? Applied Cognitive Psychology. 2009;23(8):1089-104.

7. Bluck S, Alea N, Habermas T, Rubin DC. A tale of three functions: The Self–Reported Uses of Autobiographical Memory. Social Cognition. 2005;23(1):91-117.

8. Bluck S, Gluck J. Making things better and learning a lesson: experiencing wisdom across the lifespan. J Pers. 2004;72(3):543-72.

9. Alea N, Bluck S. Why are you telling me that? A conceptual model of the social function of autobiographical memory. Memory. 2003;11(2):165-78.

10. Bluck S. Autobiographical memory: exploring its functions in everyday life. Memory. 2003;11(2):113-23.

11. Habermas T, Bluck S. Getting a life: the emergence of the life story in adolescence. Psychol Bull. 2000;126(5):748-69.

12. Cappeliez P, Rivard V, Guindon S. Functions of reminiscence in later life: proposition of a model and applications. Revue Européenne de Psychologie Appliquée/European Review of Applied Psychology. 2007;57(3):151-6.

13. Webster JD. Construction and validation of the Reminiscence Functions Scale. J Gerontol. 1993;48(5):P256-62.

14. Westerhof GJ, Bohlmeijer ET. Celebrating fifty years of research and applications in reminiscence and life review: state of the art and new directions. J Aging Stud. 2014;29:107-14.

15. El Haj M, Antoine P. Death Preparation and Boredom Reduction as Functions of Reminiscence in Alzheimer's Disease. J Alzheimers Dis. 2016;54(2):515-23.

16. El Haj M, Antoine P, Nandrino JL, Gely-Nargeot MC, Raffard S. Self-defining memories during exposure to music in Alzheimer's disease. Int Psychogeriatr. 2015;27(10):1719-30.

17. El Haj M, Allain P. Self-defining Memories and their Contribution to the Sense of Self in Alzheimer's Disease. Current Alzheimer research. 2020.

18. El Haj M, Gallouj K, Antoine P. Autobiographical recall as a tool to enhance the sense of self in Alzheimer’s disease. Archives of Gerontology and Geriatrics. 2019;82:28-34.

19. Ben Malek H, Philippi N, Botzung A, Cretin B, Berna F, Manning L, et al. Memories defining the self in Alzheimer’s disease. Memory. 2018:1-7.

20. El Haj M, Antoine P, Nandrino JL, Kapogiannis D. Autobiographical memory decline in Alzheimer's disease, a theoretical and clinical overview. Ageing research reviews. 2015;23(Pt B):183-92.

21. El Haj M, Roche J, Gallouj K, Gandolphe MC. Autobiographical memory compromise in Alzheimer's disease: a cognitive and clinical overview. Geriatr Psychol Neuropsychiatr Vieil. 2017;15(4):443-51.

22. McKhann G, Knopman DS, Chertkow H, Hyman BT, Jack CR, Jr., Kawas CH, et al. The diagnosis of dementia due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. Alzheimers Dement. 2011;7(3):263-9.

23. Miyake A, Friedman NP, Emerson MJ, Witzki AH, Howerter A, Wager TD. The unity and diversity of executive functions and their contributions to complex “frontal lobe” tasks: A latent variable analysis. Cognitive psychology. 2000;41(1):49-100.

24. Folstein MF, Folstein SE, McHugh PR. "Mini-mental state". A practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res. 1975;12(3):189-98.

25. Van der Linden M, Adam S, Agniel A, Baisset- Mouly C, Bardet F, Coyette F. L’évaluation des troubles de la mémoire: Présentation de quatre tests de mémoire épisodique (avec leur étalonnage) [Evaluation of memory deficits: Presentation of four tests of episodic memory (with standardization)]. Marseille: Solal Editeurs; 2004.

26. Grober E, Buschke H. Genuine memory deficits in dementia. Developmental neuropsychology. 1987;3(1):13-36.

27. Zigmond AS, Snaith RP. The Hospital Anxiety and Depression Scale. Acta Psychiatrica Scandinavica. 1983;67(6):361-70.

28. El Haj M, Boutoleau-Bretonnière C, Allain P. Memory of decisions: Relationship between decline of autobiographical memory and temporal discounting in Alzheimer’s disease. Journal of Clinical and Experimental Neuropsychology. 2020;42(4):415-24.

29. El Haj M, Boutoleau-Bretonniere C, Gallouj K. The Past as Seen by Women and Men With Alzheimer Disease: Sex Differences in Autobiographical Memory. Alzheimer disease and associated disorders. 2020;34(2):170-4.

30. El Haj M, Kapogiannis D, Antoine P. The picture of the past: Pictures to cue autobiographical memory in Alzheimer's disease. Journal of Clinical and Experimental Neuropsychology. 2020;42(9):914-23.

31. El Haj M, Moustafa AA, Gallouj K, Robin F. Visual imagery: The past and future as seen by patients with Alzheimer's disease. Consciousness and Cognition. 2019;68:12-22.

32. Martinelli P, Anssens A, Sperduti M, Piolino P. The influence of normal aging and Alzheimer's disease in autobiographical memory highly related to the self. Neuropsychology. 2013;27(1):69-78.

33. Cohen J. Statistical Power Analysis. Current Directions in Psychological Science. 1992;1(3):98-101.

34. Rosenthal R, DiMatteo MR. Meta-analysis: recent developments in quantitative methods for literature reviews. Annu Rev Psychol. 2001;52:59-82.

35. Ellis PD. The Essential Guide to Effect Sizes: Statistical Power, Meta-Analysis, and the Interpretation of Research Results. New York, NY: Cambridge University Press; 2010.

36. Derksen F, Bensing J, Lagro-Janssen A. Effectiveness of empathy in general practice: a systematic review. Br J Gen Pract. 2013;63(606):e76-84.

37. Howick J, Moscrop A, Mebius A, Fanshawe TR, Lewith G, Bishop FL, et al. Effects of empathic and positive communication in healthcare consultations: a systematic review and meta-analysis. J R Soc Med. 2018;111(7):240-52.

38. Kelley JM, Kraft-Todd G, Schapira L, Kossowsky J, Riess H. The influence of the patient-clinician relationship on healthcare outcomes: a systematic review and meta-analysis of randomized controlled trials. PLoS One. 2014;9(4):e94207.

39. Little P, Everitt H, Williamson I, Warner G, Moore M, Gould C, et al. Observational study of effect of patient centredness and positive approach on outcomes of general practice consultations. BMJ. 2001;323(7318):908-11.

40. Winter R, Issa E, Roberts N, Norman RI, Howick J. Assessing the effect of empathy-enhancing interventions in health education and training: a systematic review of randomised controlled trials. BMJ Open. 2020;10(9):e036471.

41. Muller S, Saur R, Greve B, Melms A, Hautzinger M, Fallgatter AJ, et al. Similar autobiographical memory impairment in long-term secondary progressive multiple sclerosis and Alzheimer's disease. Mult Scler. 2013;19(2):225-32.

42. Greene JD, Hodges JR, Baddeley AD. Autobiographical memory and executive function in early dementia of Alzheimer type. Neuropsychologia. 1995;33(12):1647-70.

43. El Haj M, Antoine P. Describe yourself to improve your autobiographical memory: A study in Alzheimer's disease. Cortex. 2017;88:165-72.

44. Glachet O, Moustafa AA, Gallouj K, El Haj M. Smell your memories: Positive effect of odor exposure on recent and remote autobiographical memories in Alzheimer’s disease. Journal of Clinical and Experimental Neuropsychology. 2019;41(6):555-64.

45. El Haj M, Antoine P. Context Memory in Alzheimer’s Disease: The “Who, Where, and When”. Archives of Clinical Neuropsychology. 2018;33(2):158-67.

46. El Haj M, Moustafa AA, Roche J, Pasquier F, Kapogiannis D, Gallouj K, et al. The “authentic subjective experience” of memory in Alzheimer’s disease. Translational Neuroscience. 2020;11(1):201.

47. El Haj M, Boudoukha A, Moustafa AA, Antoine P, Allain P, Gallouj K. "La vie en rose": A positive shift of autobiographical memory in Alzheimer's Disease. Arch Gerontol Geriatr. 2020;86:103953.

48. El Haj M, Boudoukha A, Antoine P, Moustafa AA, Gallouj K, Allain P. Memories Supporting Myself: Autobiographical Memory Supports Self-Continuity in Alzheimer's Disease. J Alzheimers Dis. 2019;70(4):1217-24.

Table 1.

Demographic and cognitive characteristics of patients with Alzheimer's Disease as assigned to each of the two study-conditions.

	Autobiographical condition ***n* = 31**	**Control condition** ***n* = 31**	
Women/Men	18/13	16/15	X^2 (1, N = 62) = .26, p = .61
Age in years	73.68 (6.80)	73.00 (6.44)	t(60) = .40, p = .69
Education in years	8.87 (2.79)	8.65 (2.48)	t(60) = .34, p = .74
General cognitive functioning	23.29 (1.37)	22.84 (1.77)	t(60) = 1.12, p = .27
Episodic memory	5.87 (2.57)	5.32 (1.92)	t(60) = .95, p = .34
Working memory (forward spans)	4.52 (1.15)	4.55 (1.34)	t(60) = .10, p = .92
Working memory (backward spans)	3.68 (1.08)	3.52 (1.06)	t(60) = .59, p = .55
Inhibition	54.00 (10.32)	52.61 (9.08)	t(60) = .56, p = .58
Depression	6.58 (1.69)	7.06 (2.11)	t(60) = .99, p = .32

Note. In the autobiographical condition, participants were invited to retrieve autobiographical memories, while no autobiographical retrieval occurred in the control condition; standard deviations are given between brackets; general cognitive functioning was evaluated with the Mini-Mental State Examination, with a maximum score of 30; episodic memory was evaluated with the Grober and Buschke task with the score referring to correct responses out of 16; performance on

the working memory forward and backward spans was measured by number of correctly repeated digits; inhibition was evaluated with the Stroop task and performance was measured by reaction time; depression was assessed with the Hospital Anxiety and Depression Scale and the maximum score was 21 points.

Table 2.

Rating of the three sympathy items by patients with Alzheimer's Disease as assigned to each of the two study-conditions.

	Autobiographical condition	**Control condition**	
"The clinician was sympathetic"	Median = 4.00, Mean = 4.26, SD = .77	Median = 3.00, Mean = 3.48, SD = 1.06	$p = .003$
"The clinician made me feel at ease"	Median = 4.00, Mean = 3.97, SD = .95	Median = 3.00, Mean = 3.26, SD = 1.04	$p = .011$
"The clinician was interested in me as a person"	Median = 4.00, Mean = 4.13, SD = .81	Median = 3.00, Mean = 3.39, SD = 1.05	$p = .005$

Note. The three items were rated from one (not at all) to five (extremely) points.