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The (fatalistic) present as experienced by individuals with Alzheimer's disease: a preliminary study

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Abstract

Background—The “time perspectives theory” describes how individuals emphasize some time frames over others (e.g., present vs. future) and thus create their unique approach to time perception. Building on this theory, we investigated three time orientations in Alzheimer's disease (AD): (1) present-hedonistic orientation, which focuses on current sensations and pleasures without considering the future, (2) present-fatalistic orientation, characterized by a bias of hopelessness and helplessness toward the future, and (3) future orientation, which focuses on achieving personal goals and future consequences of present actions.

Methods—Participants with mild AD ($n = 30$) and controls ($n = 33$) were assessed with a questionnaire regarding time perspectives and a questionnaire of depression.

Results—Results demonstrated low future orientation and high present-fatalistic orientation in AD participants, whereas older adults demonstrated the reverse pattern. Depression positively correlated with fatalistic-present orientation, but negatively correlated with hedonistic-present and future orientations.

Discussion—Although our findings are preliminary and the sample size is small, depression in mild AD seems to be related with a fatalistic orientation toward the present, as well as a hopeless and helpless perspective on the future, an orientation that results in little desire to enjoy the present.

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Conflict of interests The authors declare that they have no conflict of interest.

All participants provided informed consent, and the study was conducted in accordance with the guidelines in The Declaration of Helsinki as well as those of the ethics committee of the Hospital of Tourcoing.

Keywords

Alzheimer's disease; Depression; Future thinking; Time perspectives

Future thinking, i.e., the ability to project oneself forward in time to anticipate and plan for future events, has been found to be compromised in Alzheimer's disease (AD) [1], and this compromise has been attributed to several cognitive factors, especially difficulties in the ability to extract and recombine information from past events into coherent and novel scenarios [2–4]. Research has also attributed the compromise of future thinking in AD patients to a decline in autothetic consciousness, i.e., the ability to mentally project oneself in time [3]. Although these accounts provide insight into the cognitive mechanisms that underlie compromise of future thinking in AD, very little is known about the emotional and attitudinal correlates of future thinking in the disease.

The relationship between emotional regulation and future thinking can be highlighted with the “time perspectives theory” that describes how individuals assign the continual flow of personal experiences to temporal categories or time frames [5]. According to the time perspectives theory, individuals learn to categorize personal and social experiences into time frames (e.g., present vs. future) to lend order, coherence, and meaning to these events. More specifically, the time perspectives theory proposes five time orientations, (1) past positive, which refers to a positive sentimental and nostalgic vision of the past, (2) past negative, which refers to a negative attitude towards the personal past, (3) present-hedonistic, that refers to a focus on pleasures and current sensations, without considering the future, (4) present-fatalistic, characterized by a bias of hopelessness and helplessness toward the future, and (5) future, which refers to an orientation to achieve personal goals and to evaluate the future consequences of present actions. Considering these five orientations, our study investigated whether individuals with AD demonstrate an orientation toward the future or the hedonistic or fatalistic present. The positive and negative past orientations, as proposed by the time perspectives theory, were not investigated in our study, as the greatest clinical interest lies in future orientation in AD patients, which according to the theory is associated with emotional regulation and attitudes towards the present rather than with the past. Another reason was that, unlike the lack of research on present-hedonistic and present-fatalistic orientations in AD, an abundant literature has covered both past positive [6–8] and past negative orientations in the disease [9–11].

Besides investigating whether individuals with AD would demonstrate an orientation toward the hedonistic or fatalistic present when dealing with the future, another objective was to investigate relationships between these three time orientations and depression. This aim was inspired by research suggesting that time perspectives theory is relevant for the study of well-being, quality of life, and mental health [12, 13]. More specifically, hedonistic orientation toward the present has been found to be positively correlated with optimism [14] and happiness in the general population [15]; these findings are in line with the consideration of Maslow [16] who hypothesized that a focus on the present with an emphasis on the “here and now” is important for well-being. In contrary, the present-fatalistic orientation, as proposed by the time perspectives theory, has been found to reflect

helpless and hopeless attitudes towards life and the future and has been found to be related with aggression, anxiety, and depression [17, 18]. In the same way, present-fatalistic orientation has been associated with lack of life satisfaction and poor mental health [19]. Present-fatalistic orientation has been also suggested as a significant indicator of suicidal ideation in adolescents [20]. As for the future orientation, research suggests that individuals who orient themselves towards the future possess high ability to plan and generally present high levels of subjective well-being and low levels of depression [21, 22]. Nevertheless, an overemphasis on future goals may result in high levels of anxiety, which negatively affect the capacity to enjoy present activities [15].

Research in normal aging has assessed the present-hedonistic, present-fatalistic, and future orientations. Desmyter and De Raedt [23] have investigated this issue in a population of 149 healthy older adults aged between 65 and 96 years. The authors found that older adults with present-hedonistic orientation reported more life satisfaction, and the same thing was observed for those with future orientation. In contrary, older adults with present-fatalistic orientation reported more depressive feelings and less satisfaction with life. These findings corroborate previous research showing that older adults tend to demonstrate more future and present-hedonistic orientation than present-fatalistic orientation [18]. There is also evidence to suggest that although older adults think often about their own future death, this future inspires less fear and anxiety in them than in younger adults [24]. Other studies also found that maintaining a future perspective is crucial for well-being in older people, if combined with other time orientations [25].

To summarize, to the best of our knowledge, there is no published information about future time perspectives in AD. We therefore compared present-hedonistic, present-fatalistic, and future orientations in individuals with AD. More specifically, we investigated whether these individuals demonstrate high present-fatalistic and low future orientations. We also investigated the relationship between these three time orientations and depression, expecting that high levels of depressive symptoms would be positively correlated with present-fatalistic orientation and negatively with low future orientation. We reasoned that, due to the disease and cognitive decline, people who have been diagnosed with AD may have lost hope for their future, resulting in depression and hopelessness and helplessness toward the future.

Method

Participants

This study included 30 participants with a clinical diagnosis of probable mild AD (22 women and 8 men; M age = 71.57 years, SD = 7.03; M years of formal education = 8.57, SD = 2.61) and 33 control older adults (23 women and 10 men; M age = 68.94 years, SD = 5.63; M years of formal education = 9.64, SD = 2.82). The AD participants were recruited from local retirement homes. They were diagnosed with probable AD dementia by an experienced neurologist or geriatrician based on the NIA-AA clinical criteria [26]. The older adults were often spouses or companions of AD participants, were independent and living at home. These participants were matched with the AD participants according to sex (X^2 (1, N = 63) = .10, p > .10), age (t (61) = 1.64, p > .10), and educational level (t (61) = 1.56, p > .10).

All participants provided informed consent, and the study was conducted in accordance with the guidelines in The Declaration of Helsinki as well as those of the ethics committee of the Hospital of Tourcoing. Exclusion criteria were significant psychiatric or neurological illness, history of alcohol or drug use, and major visual or auditory acuity difficulties that could prevent assessment. Clinical and cognitive characteristics of all participants were assessed with a comprehensive battery described below (for further details on the battery, see [27, 28]). AD participants were tested in retirement homes and controls in their own homes.

Clinical and cognitive characteristics

Participants were assessed a battery tapping general cognitive functioning, episodic memory, working memory, shifting, and depressive symptoms. General cognitive functioning was assessed with the Mini-Mental State Exam (MMSE) and the maximum score was 30 points [29]. Verbal episodic memory was evaluated with the task of Grober and Buschke [30] on which participants had to retain 16 words, each of which describes an item that belongs to a different semantic category. After immediate cued recall, the participants proceeded to a distraction phase, during which they had to count backwards from 374 in 20 s. The distraction phase was immediately followed by 2 min of free recall and the score/16 from this phase provided a measure of episodic recall. In the working memory assessment, participants had to repeat a string of single digits in the same order (i.e., forward spans) or in the reverse order (i.e., backward spans); scores referred to number of correctly repeated digits. In order to evaluate executive function, we assessed shifting with the Plus–Minus task. The score referred to the difference between the time for list 3 (shifting between addition and subtraction) and the average times for lists 1 (addition) and 2 (subtraction). We assessed depressive symptoms with the Hospital Anxiety and Depression Scale [31], consisting of seven items that were scored by the participants on a 4-point scale from 0 (not present) to 3 (considerable). Scores on clinical and cognitive tasks for study participants are summarized in Table 1.

Procedure

Participants completed a French validation [32] of the Zimbardo Time Perspective Inventory [5]. The present-hedonistic orientation was assessed with seven items (“I do things impulsively,” “When listening to my favorite music, I often lose track of time,” “I try to live my life as fully as possible, one day at a time,” “Ideally, I would live each day as if it were my last,” “I make decisions on the spur of the moment,” “I often follow my heart more than my head,” and “I feel that it’s more important to enjoy what you’re doing than to get work done on time”). The present-fatalistic orientation was assessed with seven items (“Fate determines much of my life,” “Since whatever will be will be, it doesn’t really matter what I do,” “It takes joy out of the process and flow of my activities if I have to think about goals, outcomes, and products,” “My life path is controlled by forces I cannot influence,” “It doesn’t make sense to worry about the future, since there is nothing that I can do about it anyway,” “Life is too complicated; I would prefer the simpler life of the past,” and “Often luck pays off better than hard work”). The future orientation was assessed with seven items (“I believe that a person’s day should be planned ahead each morning,” “Meeting tomorrow’s deadlines and doing necessary work comes before tonight’s play,” “It upsets me to be late for appointments,” “I meet my obligations to friends and authorities on time,” “I

take each day as it is rather than try to plan it out,” “Before making a decision, I weigh the costs against the benefits,” “I make lists of things to do,” and “There will always be time to catch up on my work”). Each item was scored on a 5-point Likert scale (1 = very uncharacteristic of me; 5 = very characteristic of me). Although the French validation of the Zimbardo Time Perspective Inventory includes more than seven items for the three time orientations, we excluded items that do not fit with everyday life of AD patients (e.g., “I believe that getting together with one’s friends to party is one of life’s important pleasures”) as well as those with low factor loadings in the French validation.

Results

We compared differences between mean scores of AD participants and older adults for each of the three time orientations. Non-parametrical tests were used due to the scale nature and abnormal distribution of variables. Significant comparisons were reported with effect size; $d = 0.2$ can be considered a small effect size, $d = 0.5$ represents a medium effect size, and $d = 0.8$ refers to a large effect size [33]. We also assessed, for each population, (Spearman) correlations between scores on the inventory and depressive symptoms. Bonferroni correction was not applied as it may increase type II errors and therefore may be overly conservative (for the same view, see [34, 35]). Another reason why Bonferroni correction might not be appropriate is related to the specificity of our hypothesis, according to Perneger [36], this correction may not be a necessary step in studies where specific predictions are made. For all tests, level of significance was set as $p < 0.05$, p values between 0.051 and 0.10 were considered trends, if any.

Low future orientation and high present-fatalistic orientation in AD

In AD participants (see Fig. 1), Wilcoxon signed-rank test showed significantly lower scores on future orientation than on present-hedonistic orientation ($Z = -2.16$, $p < .05$, Cohen’s $d = .59$) or on present-fatalistic orientation ($Z = -3.45$, $p < .001$, Cohen’s $d = 1.30$), and lower scores on present-hedonistic orientation than on present-fatalistic orientation ($Z = -2.14$, $p < .05$, Cohen’s $d = .66$). In older adults, analyses showed lower scores on present-fatalistic orientation than on future orientation ($Z = -2.62$, $p < .01$, Cohen’s $d = .81$) or on present-hedonistic orientation ($Z = -2.46$, $p < .05$, Cohen’s $d = .67$), whereas no significant differences were observed between future and present-hedonistic orientations ($Z = .35$, $p > .01$).

The Mann–Whitney U test showed significantly lower scores in AD participants than in older adults on present-hedonistic orientation ($Z = -2.46$, $p < .05$, Cohen’s $d = .64$), and future orientation ($Z = -4.55$, $p < .001$, Cohen’s $d = 1.47$). Higher scores were observed in AD participants than in older adults on present-fatalistic orientation ($Z = -2.61$, $p < .01$, Cohen’s $d = .70$).

Positive correlations between depressive symptoms and fatalistic-present orientation in AD

In both populations (see Table 2), depressive symptoms were positively correlated with fatalistic-present orientation, but negatively correlated with hedonistic-present and future

orientations. For convenience, we assessed correlations between the three categories of time perspective and general cognitive ability, episodic memory, working memory, and shifting and found no significant correlations ($p > .1$).

Discussion

The paper investigated present-hedonistic, present-fatalistic, and future orientations in AD. Results demonstrated low future orientation and high present-fatalistic orientation in AD participants, whereas older adults demonstrated the reverse pattern. In both populations, depressive symptoms were positively correlated with fatalistic-present orientation, but were negatively correlated with hedonistic-present and future orientations.

Relatively to present-hedonistic and present-fatalistic orientations, our AD participants demonstrated low future orientation. These findings mirror the literature on decline of future thinking in the disease [2–4, 37]. More precisely, as the future orientation items of the Zimbardo Time Perspective Inventory assess how individuals strive to achieve personal goals and evaluate future consequences of present actions, our findings suggest that individuals with AD tend to orient themselves disproportionately toward the present than toward the future. This consideration may be compared with the idea that people with amnesia occupy a permanent present [38] or lack the temporal consciousness that is required to recollect the past or construct the future [39–43]. Although this metaphor may be partially accurate in characterizing the mental life of a severely amnesic person or even individuals with advanced AD, it should be highlighted that individuals with mild AD are not literally “stuck in time.” These patients may demonstrate some ability to mentally project themselves in the future and, especially, project themselves in the past to recollect memories with high emotional valence [44, 45]. Together, our findings suggest that individuals with AD tend to consider their life in terms of short-term rather than long-term plans, disproportionately orienting themselves toward the present.

Besides demonstrating a general orientation toward the present than toward the future, our AD participants demonstrated more present-fatalistic than present-hedonistic orientation, and this fatalism was correlated with depressive symptoms. Generally speaking, hopelessness, as assessed with the present-fatalistic items of the Zimbardo Time Perspective Inventory, has been considered an indicator of depression [46, 47]. Empirical research, using a variety of methods, has demonstrated that depressed people tend to feel hopeless in their prediction of future and are more likely to anticipate negative events [48–50]. Considering the prevalence of depression in AD (for review, see [9, 10]), it is not surprising that our participants demonstrated more present-fatalistic than present-hedonistic orientations. Depression in AD seems to be related with a fatalistic orientation toward the present, as well as a hopeless and helpless perspective on the future, an orientation that results in little desire to enjoy the present (i.e., low present-hedonistic orientation). More specifically, due to the cognitive and functional decline, patients with AD may have lost hope for their future, resulting in depression and hopelessness toward the future. In other words, the awareness of looming death in AD, especially after the diagnosis is conveyed, may trigger depression and lack of a hedonistic orientation toward the present or future. Although a hedonistic focus on the here-and-now may function to reduce this negative effect, such orientation may be

limited in AD patients due to the cognitive and functional decline as well as to the social withdrawal.

Contrary to AD participants, older adults demonstrated less present-fatalistic orientation than present-hedonistic or future orientations. These findings replicate research assessing the Zimbardo Time Perspective Inventory in normal aging [18, 23, 51]. Interestingly, depressive symptoms were negatively correlated with the present-hedonistic and future orientations, but positively correlated with the present-fatalistic orientations. These findings can be linked to the socioemotional selectivity theory [52], which holds that time perspectives influence motivation in aging. Research based on this theory has demonstrated that older people attach more importance and attention to present and past positive stimuli, resulting in general satisfaction with accomplishments during life [53, 54]. In our view, healthy older adults tend to see their future as a way of maintaining the positive affects they enjoy in the present. A positive view of the present in normal aging tends to go hand in hand with a positive attitude towards the future, and positive affect in general.

One potential limitation of our study is the small sample size, which increases the risk of type II statistical errors. We also did not correct for multiple comparisons, inflating the risk of type I error. Also, the causality between depression and future time perspective should be approached with caution as our findings demonstrate correlations rather than cause-effect relationships.

To summarize, human beings conceive the future and present in a dynamic interaction from which complex future thinking emerges in the ongoing present moment. This interaction requires conscious awareness of self-continuity, and the use of mental time travel into the past and future to, respectively, extract autobiographical information and construct future scenarios. Whereas research on future thinking in AD has been mainly concerned with the comparison between past and future thinking, our study expands this literature by demonstrating how future thinking influences the orientation toward the present. In our view, individuals with mild AD can successfully disentangle present from future time perspectives; the difficulty, however, lies in finding a balance between these two perspectives in a dynamic way according to the situation. This view suggests that compromise in time perspectives in AD may be related with a difficulty in switching flexibly between several time perspectives depending on task features and environmental demands, resulting in a bias towards a present-fatalistic orientation in the disease.

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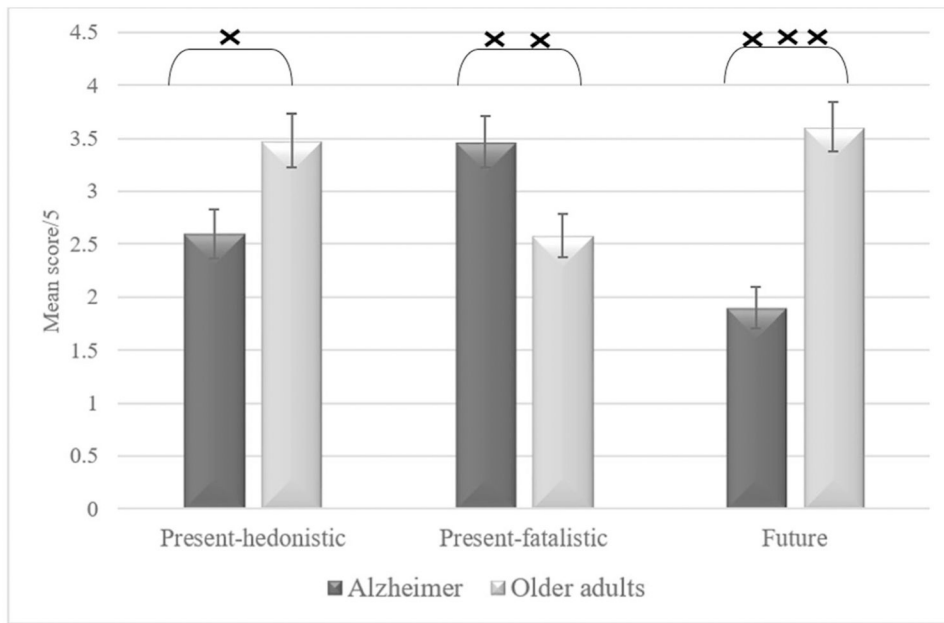


Fig. 1. Mean scores on the three time perspectives, as assessed with the Zimbardo Time Perspective Inventory. $^x p < .05$, $^{xx} p < .01$, $^{xxx} p < .001$. Error bars are 95% within-subject confidence intervals

Cognitive and clinical characteristics of Alzheimer's disease (AD) patients and older adults

Table 1

Task	AD <i>n</i> = 30	Older adults <i>n</i> = 33
General cognitive functioning	Mini-Mental State Examination (MMSE) 21.90 (1.49)***	28.36 (1.29)
Episodic memory	Grober and Buschke 6.03 (2.25)***	11.03 (3.11)
Working memory	Forward span 5.43 (1.38)*	6.52 (1.82)
	Backward span 3.67 (1.15)***	5.27 (1.44)
Shifting	Plus-Minus 12.42 (7.23)***	6.16 (3.20)
Depressive symptoms	HADS 10.33 (3.40)***	6.67 (2.29)

Note: Standard deviations are given between brackets; the maximum score on the MMSE was 30 points; the maximum score on the episodic task was 16 points; performances on the forward and backward spans refer to number of correctly repeated digits; scores on the Plus-Minus task refer to reaction time; the maximum score on the HADS (Hospital Anxiety and Depression Scale) was 21 points; differences between groups were significant at * $p < .05$, *** $p < .001$

Correlations between the three time orientations (i.e., present-hedonistic, present-fatalistic, and future) and depression

Table 2

	1. Hedonistic	2. Fatalistic	3. Future	4. Depression
Alzheimer	1. -			
	2. $-.37$ $p < .05$	-		
	3. $-.19$ $p > .01$	$-.38$ $p < .05$	-	
	4. $-.54$ $p < .01$	$.44$ $p < .01$	$-.46$ $p < .01$	-
Older adults	1. -			
	2. $-.11$ $p > .01$	-		
	3. $-.10$ $p > .01$	$-.10$ $p > .01$	-	
	4. $-.47$ $p < .01$	$.47$ $p < .01$	$-.38$ $p < .05$	-