# Findings from the Alzheimer' Disease Patient and Caregiver Engagement (AD PACE) Initiative's What Matters Most Qualitative Study

George Vradenburg, BA, JD(1), Dana B DiBenedetti, PhD(2), Brett Hauber, PhD(2), Christina Slota, PhD, RN(2), Samantha L. Wronski, MS(2), Meryl Comer, BS(1), Leigh F Callahan, PhD(3), John Winfield, MD(3), Ivana Rubino, PhD(4), Holly B. Krasa, MS(5), Ann Hartry, PhD(6), Dan Wieberg, BA(7), Ian N. Kremer, JD(8), Debra Lappin, JD(9), Allison D. Martin, MS(9), Terry Frangiosa, MBA (1); and Virginia Biggar(1)

(1)UsAgainstAlzheimer's, Washington, DC, USA, (2)RTI Health Solutions, Research Triangle Park, NC, USA, (3)University of North Carolina, Chapel Hill, NC, USA, (4)Biogen, Inc., Cambridge, MA, USA, (5)OTSUKA Pharmaceutical Development & Commercialization, Inc., Rockville, MD, USA, (6)Lundbeck LLC, Deerfield, IL, USA, (7)Home Instead, Inc., Omaha, NE, USA, (8)LEAD Coalition (Leaders Engaged on Alzheimer's Disease), Washington, DC, USA, (9)Faegre Baker Daniels Consulting, Washington, DC, USA, (12)UsAgainstAlzheimer's, Chevy Chase, D

## BACKGROUND

The AD PACE What Matters Most (WMM) study is a two-part study designed to better understand and assess treatment-related needs (i.e. what matters) as well as treatment preferences and priorities (i.e. what matters most) among individuals with or at risk for Alzheimer's Disease (AD) and their caregivers. In-depth understanding of the impact of AD on specific treatment needs of people with and at risk for AD and their care partners across the continuum of the disease is much needed to inform:

1. the development of AD therapies and care services;
2. the need for new tools and measures that assess outcomes that are confirmed as most meaningful to individuals with AD and caregivers;
3. the regulatory review of new therapies to treat AD;
4. health technology assessments and reimbursement decisions for new therapies and services to treat and manage AD; and
5. a growing understanding of the unique experience of care partners of people with AD.

The current study is being conducted in two phases:

- **Phase 1** is a qualitative phase to elicit the potential treatment-related outcomes that matter to people with or at risk for AD and their care partners.
- **Phase 2** is a quantitative phase to estimate how much each potential treatment-related outcome matters and which potential treatment-related outcomes matter most.

**This poster describes the research activities for Phase 1. Phase 2 of the study is currently underway with anticipated completion in Q3 2019.**

## METHODS

In-depth interviews were conducted with 60 clinically-referred individuals and caregivers across a continuum of 5 AD stages (n=12 each)

**Group 1: Individuals with unimpaired cognition but with evidence of AD pathology**
**Group 2: Individuals with mild cognitive impairment (MCI) and evidence of AD pathology**
**Group 3: Individuals with a diagnosis of mild AD**
**Group 4: Individuals with a diagnosis of moderate AD and their care partners (dyads interviewed together)**
**Group 5: Care partners of individuals with a diagnosis of severe AD**

Participants were recruited through Global Market Research Group (GMRG) and Raleigh Neurology Associates (RNA), a neurology site based in Raleigh, North Carolina. All patients and care partners were referred directly from clinical sites in five locations: Chicago, IL; St. Louis, MO; St. Paul, MN; New Orleans, LA; and Raleigh, NC.

- Participants in Groups 1, 2, and 3 were interviewed directly and self-reported their symptoms as well as worries, impacts, and desired treatment outcomes.
- Participants in Group 4 were interviewed together with their care partners (as a dyad) and, when able, were asked to self-report on their symptoms, worries, impacts, and desired treatment outcomes.
- In Group 5, care partners of the participants with severe AD were interviewed. Care partners in both Groups 4 and 5 reported on symptoms they observed in their care recipients, their own worries and impacts to their lives, and what they desired in treatment outcomes.

All interviews lasted for approximately 60 minutes and followed semi-structured interview guides. The purpose of the interview guides was to ensure that data were collected in a systematic and consistent way and that the interview objectives were met, while also encouraging spontaneity of responses and a conversational tone throughout the interviews. Content for the AD participant and care partner interview guides was selected from a number of resources including the following:

- Concepts and domains included in the Alzheimer's Disease Assessment Scale – Cognitive (ADAS-Cog) (Rosen et al., 1984; Mohs et al., 1997; Kueper et al., 2018)
- The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, 5th edition (American Psychiatric Association, 2013)
- United States Food and Drug Administration (FDA) Early Alzheimer's Disease draft guidance document (FDA, 2018)
- Unpublished materials from AD PACE Sponsor (e.g., qualitative reports, preference studies)
- Published literature
- Feedback from patient and care partner representatives, nonprofit agencies

Minor revisions to the interview guides were made after the first 13 interviews (composed of participants representing each of Groups 2 - 5). The revised patient and care partner interview guides were used for the remaining interviews.

Interviews were conducted by experienced interviewers, one of whom is a licensed clinical psychologist, audio-recorded, and transcribed. Qualitative data analysis included identification of dominant trends in each interview and comparison across subsequent interviews to generate themes or patterns in the description of AD symptoms, impacts, and desired treatment outcomes.

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## RESULTS

Patient demographic data were collected during screening for a total of 60 patients and are presented in Table 1.

- Descriptions of symptoms, impacts, worries, and desired treatment outcomes of participants in Group 4 were collected from both people with AD (when able to self-report) and their care partners.
- Many in Group 4 lacked insight into their symptoms and thus were not able to provide much (if any) data on these topics, particularly with regard to impacts, future worries, and desired treatment outcomes.
- The primary focus of the care partner interviews (Groups 4 and 5) was to obtain the care partner's view on how AD impacts them. Thus, impacts to the care partner (not the patient), care partner worries, and desired treatment outcomes for their care recipients were collected via care partner report for both Groups 4 and 5.

> *Sometimes I do [forget the names of people]. I meet people and I just try to remember their names… eventually I figure it out who they are.*

> *Not being able to find normal things he [care recipient] should have. His watch, he has a very nice watch. Where did it go? I don't know. I had it on. Can't find it.' Those types of things…*

> *…just driving and being lost… like all of a sudden the road I turn on to go down to our place… complete blank. You think I could think of it. I mean, 18 years. And then all of a sudden it came to me.*

> *She calls my brother me, and calls me my brother, and forgets who some people are…*

### Table 1. Patient Demographic Characteristics

| Patient Characteristics | AD Classification: Group 1 (n = 12) | Group 2 (n = 12) | Group 3 (n = 12) | Group 4 (n = 12) | Group 5 (n = 12) | Total Patient Sample (N = 60) |
|---|---|---|---|---|---|---|
| **Current age (years)** | | | | | | |
| Mean (SD) | 65.9 (10.3) | 67.8 (8.8) | 73.1 (10.1) | 74.2 (7.6) | 78.1 (9.3) | **71.8 (10.0)** |
| Range | 56-89 | 53-82 | 52-87 | 60-89 | 57-88 | **52-89** |
| **Sex, n (%)** | | | | | | |
| Male | 5 (41.7) | 4 (33.3) | 7 (58.3) | 5 (41.7) | 6 (50.0) | **27 (45.0)** |
| Female | 7 (58.3) | 8 (66.7) | 5 (41.7) | 7 (58.3) | 6 (50.0) | **33 (55.0)** |
| **Race/ethnicity, n (%)** | | | | | | |
| White/Caucasian | 9 (75.0) | 8 (66.7) | 10 (83.3) | 10 (83.3) | 9 (75.0) | **46 (76.7)** |
| Black/African American | 2 (16.7) | 1 (8.3) | 2 (16.7) | 1 (8.3) | 2 (16.7) | **8 (13.3)** |
| Asian | 0 (0.0) | 2 (16.7) | 0 (0.0) | 1 (8.3) | 0 (0.0) | **3 (5.0)** |
| Hispanic or Latino | 1 (8.3) | 1 (8.3) | 0 (0.0) | 0 (0.0) | 1 (8.3) | **3 (5.0)** |

Note: Demographic data for patients in Groups 1, 2, and 3 were self-reported; data for patients in Groups 4 and 5 were reported by care partners at screening

The majority of AD participants in the study were living with their spouse or partner (n = 28; 46.7%) or with their children (n = 11; 18.3%). All participants in Groups 1, 2, and 3 lived in a home or apartment and nearly half (n = 17; 47.2%) worked full- or part-time. None of the patients in Groups 4 and 5 were employed or living alone in their own home, with the exception of one patient from Group 5 who was moving in the next month to an assisted living facility. Three participants (Group 4, n = 1; Group 5, n = 2) lived in an assisted living facility.

Care partner demographic data were collected during screening for a total of 24 care partners and are presented in Table 2. Care partners in Group 4 were interviewed along with their care recipient; those in Group 5 were interviewed independently.

### Table 2. Care Partner Demographic Characteristics

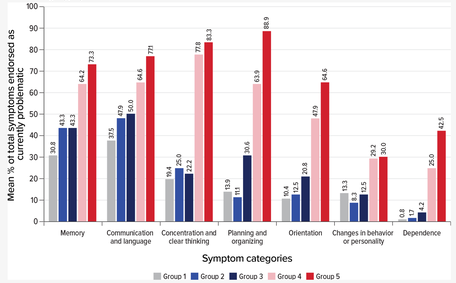
| Demographic Characteristics | AD Classification: Group 4 (n = 12) | Group 5 (n = 12) | Overall Sample (N = 24) |
|---|---|---|---|
| **Current age (years)** | | | |
| Mean (SD) | 64.1 (13.9) | 56.0 (13.5) | 60.0 (14.0) |
| Range | 39-81 | 32-83 | 32-83 |
| **Sex, n (%)** | | | |
| Male | 3 (25.0) | 3 (25.0) | 6 (25.0) |
| Female | 9 (75.0) | 9 (75.0) | 18 (75.0) |
| **Relationship to patient, n (%)** | | | |
| Child | 4 (33.3) | 9 (75.0) | 13 (54.2) |
| Spouse | 7 (58.3) | 3 (25.0) | 10 (41.7) |
| Cousin | 1 (8.3) | 0 (0.0) | 1 (4.2) |
| **Hours spent providing direct care to patient in a typical week** | | | |
| Mean (SD) | 65.7 (44.8) | 65.25 (39.6) | 65.7 (41.4) |
| Range | 8-168 | 25-168 | 8-168 |
| **Race/ethnicity, n (%)** | | | |
| White/Caucasian | 10 (83.3) | 10 (83.3) | 20 (83.3) |
| Black/African American | 1 (8.3) | 2 (16.7) | 3 (12.5) |
| Asian | 1 (8.3) | 0 (0.0) | 1 (4.2) |

***Current Symptoms:*** All 60 patients, including those in Group 1, were reported to currently be experiencing at least one AD-related symptom:

- Participants in both early and late stages of AD experienced or were observed to have issues related to memory/forgetfulness (n = 60; 100.0%)
- Across all five AD groups, nearly all patients experienced symptoms related to communication and language (n = 55; 91.7%).
- Issues related to concentration and clear thinking were reported by all care partners whose care recipients were in later stages of the disease (Groups 4 and 5), and by approximately half of the patients in Groups 1, 2, and 3.
- Symptoms of AD related to planning and organizing and orientation were reported by all of the care partners in Group 5 and almost all of the care partners in Group 4 (n = 11; 91.7% for planning and organizing; n = 10; 83.3% for orientation) and by half (n = 6) of the patients in Group 3. However, fewer than half of the patients in Groups 1 and 2 reported symptoms in these two domains.
- Changes in behavior or personality were observed by almost all of the participants in Groups 4 and 5 (n = 11; 91.7% for each group), and by approximately half of the participants in Groups 1, 2, and 3.
- All of the care partners in Group 5 and almost all participants in Group 4 (n = 11; 91.7%) reported experiencing AD symptoms related to dependence. Fewer participants reported issues with dependence in Groups 1, 2, and 3 (range, 1-3 per group), and mostly noted that these issues were related to driving.

As shown in Figure 1, current symptoms related to memory and to communication/language were endorsed even by participants who had not been diagnosed with AD and those with early-stage AD (i.e., Groups 1 and 2). However, the average frequency with which these issues were reported was generally seen to increase as patients moved into more advanced disease stages (Groups 3, 4, and 5).

**FIGURE 1: Mean Percentage of Items Endorsed as Currently Problematic Within a Symptom Category, by Group**




***Current and Future Worries:*** Current and future concerns reported by the overall sample included memory (n=48; 80%), dependence (n=40; 66.7%), and "other" concerns (n=33; 55.0%), which included uncertainty about the future, burdening others. The most commonly reported current or future concern (i.e., those reported by 25% or more of participants in the total sample) are included in Table 3.

### Table 3. Frequency of Patients' and Care Partners' Future Worries Reported by ≥ 25% of All Participants

| Worry, n (%) | AD Classification: Group 1 (n = 13) | Group 2 (n = 13) | Group 3 (n = 13) | Group 4 (n = 13) | Group 5 (n = 13) | Total (N = 60) |
|---|---|---|---|---|---|---|
| **Memory/forgetfulness** | **12 (100.0)** | **10 (83.3)** | **7 (58.3)** | **11 (91.7)** | **8 (66.7)** | **48 (80.0)** |
| Long-term memory issues (e.g., forgetting familiar routes, getting lost in familiar places, remembering family or friends) | 9 (75.0) | 2 (16.7) | 4 (33.3) | 3 (25.0) | 4 (33.3) | 22 (36.7) |
| Forgetting to turn off running water or appliances (e.g., the stove, coffee pot, iron) | 5 (41.7) | 3 (25.0) | 2 (16.7) | 3 (25.0) | 5 (41.7) | 18 (30.0) |
| Forgetting to take medications | 5 (41.7) | 4 (33.3) | 1 (8.3) | 5 (41.7) | 2 (16.7) | 17 (28.3) |
| **Dependence** | **11 (91.7)** | **9 (75.0)** | **5 (41.7)** | **9 (75.0)** | **6 (50.0)** | **40 (66.7)** |
| Not being able to take care of yourself/needing to depend on others | 10 (83.3) | 8 (66.7) | 4 (33.3) | 7 (58.3) | 3 (25.0) | 32 (53.3) |
| Not being able to drive | 9 (75.0) | 3 (25.0) | 5 (41.7) | 4 (33.3) | 0 (0.0) | 21 (35.0) |
| Having to move out of own home | 5 (41.7) | 3 (25.0) | 4 (33.3) | 5 (41.7) | 3 (25.0) | 20 (33.3) |
| Not able to choose where live or who with | 5 (41.7) | 2 (16.7) | 3 (25.0) | 5 (41.7) | 4 (33.3) | 19 (31.7) |
| Not making your own decisions about how you want to live your life | 7 (58.3) | 3 (25.0) | 3 (25.0) | 4 (33.3) | 1 (8.3) | 18 (30.0) |
| Not being able to choose who helps you | 7 (58.3) | 2 (16.7) | 3 (25.0) | 5 (41.7) | 1 (8.3) | 18 (30.0) |
| **Other*** | **8 (66.7)** | **7 (58.3)** | **5 (41.7)** | **11 (91.7)** | **2 (16.7)** | **33 (55.0)** |
| What future holds | 7 (58.3) | 6 (50.0) | 3 (25.0) | 10 (83.3) | 1 (8.3) | 27 (45.0) |
| General being a burden | 6 (50.0) | 3 (25.0) | 2 (16.7) | 4 (33.3) | 0 (0.0) | 15 (25.0) |
| **Communication and language** | **9 (75.0)** | **6 (50.0)** | **4 (33.3)** | **6 (50.0)** | **3 (25.0)** | **28 (46.7)** |
| Difficulty following what other people are saying in conversations | 7 (58.3) | 4 (33.3) | 1 (8.3) | 2 (16.7) | 2 (16.7) | 16 (26.7) |
| Losing train of thought in conversations; losing track of what you are talking about | 6 (50.0) | 3 (25.0) | 3 (25.0) | 2 (16.7) | 2 (16.7) | 16 (26.7) |
| **Concentration and clear thinking** | **7 (58.3)** | **7 (58.3)** | **5 (41.7)** | **3 (25)** | **4 (33.3)** | **26 (43.3)** |
| Difficulty focusing or paying attention (e.g., while reading, watching a movie or TV, completing a task) | 5 (41.7) | 6 (50.0) | 4 (33.3) | 3 (25.0) | 3 (25.0) | 21 (35.0) |
| Difficulty making decisions | 5 (41.7) | 6 (50.0) | 3 (25.0) | 1 (8.3) | 3 (25.0) | 18 (30.0) |
| **Planning and organizing** | **5 (50.0)** | **4 (33.3)** | **3 (25.0)** | **5 (41.7)** | **4 (33.3)** | **22 (36.7)** |
| Difficulty knowing what steps are next when performing a task (e.g., preparing a meal/cooking, shaving, getting dressed, bathing/showering) | 4 (33.3) | 4 (33.3) | 3 (25.0) | 4 (33.3) | 0 (0.0) | 15 (25.0) |
| **Orientation** | **6 (50.0)** | **4 (33.3)** | **2 (16.7)** | **7 (58.3)** | **4 (33.3)** | **23 (38.3)** |
| Knowing where you are | 5 (41.7) | 3 (25.0) | 1 (8.3) | 4 (33.3) | 3 (25.0) | 16 (26.7) |
| **Changes in behavior or personality** | **6 (50.0)** | **7 (58.3)** | **3 (25.0)** | **9 (75.0)** | **4 (33.3)** | **29 (48.3)** |

* Included worries such as what the future holds, being a burden, safety issues, not being able to do anything, not being aware of what is going on, sundowners
Note: Information was collected from patients only from Groups 1, 2, and 3; from care partners and patients (when able to self-report) in Group 4; and from care partners only in Group 5.
Note: Table contains the current or future worries reported by 25% or more of participants in the total sample

***Most Bothersome or Challenging Issues:***
Participants were asked what the most bothersome or challenging thing was that they experienced as a result of AD-related symptoms. While some participants pointed to a particular symptom as being bothersome or challenging, others reported that concerns about the future bothered or challenged them most. Participants were allowed to report more than one most bothersome or challenging issue, yielding total frequencies greater than 100%. Only two categories were identified by more than 40% of the sample as being most bothersome or challenging: memory/forgetfulness (short-term memory, forgetting friends and family, general memory issues, and losing of misplacing things) and "other" concerns such as uncertainty about the patient declining in the future and patients' worry about being a burden on others for care.

The majority of participants (n = 48; 80.0%) reported at least one most bothersome symptom or issue (range, 1-7), although 12 participants did not identify anything as bothersome or challenging.

### Table 4. Frequency of Most Bothersome or Challenging Issues to Patients and Care Partners

| Most Bothersome or Challenging Issue Category, n (%) | AD Classification: Group 1 (n = 12) | Group 2 (n = 12) | Group 3 (n = 12) | Group 4 (n = 12) | Group 5 (n = 12) | Total (N = 60) |
|---|---|---|---|---|---|---|
| **Memory/forgetfulness**<br>includes short-term memory; losing or misplacing things; forgetting medications; forgetting why you walked into a room; forgetting to turn off water or appliances; relying on lists, reminders, or others; long-term memory issues, forgetting friends/family | 7 (58.3) | 5 (41.7) | 5 (41.7) | 7 (58.3) | 1 (8.3) | 25 (41.7) |
| **Other*** | 3 (25.0) | 1 (8.3) | 5 (41.7) | 9 (75.0) | 7 (58.3) | 25 (41.7) |
| **Changes in behavior or personality**<br>includes angry outbursts (getting mad), being impatient/irritable, being suspicious, anxiety, feeling scared, not wanting to do things you enjoyed before, feeling depressed or sad, feeling frustrated or flustered, getting upset, and other behavior or personality changes (n = 3) | 1 (8.3) | 1 (8.3) | 3 (25.0) | 7 (58.3) | 2 (16.7) | 14 (23.3) |
| **Dependence**<br>includes not being able to care for yourself, not being able to drive, and needing to move out of your home | 2 (16.7) | 1 (8.3) | 1 (8.3) | 1 (8.3) | 3 (25.0) | 8 (13.3) |
| **Communication and language**<br>includes difficulty following conversations, losing train of thought, difficulty finding words and names, not making sense when speaking | 2 (16.7) | 1 (8.3) | 1 (8.3) | 2 (16.7) | 1 (8.3) | 7 (11.7) |
| **Concentration and clear thinking**<br>includes difficulty focusing/paying attention, difficulty managing money, difficulty making decisions | 2 (16.7) | 3 (25.0) | 1 (8.3) | 0 (0.0) | 0 (0.0) | 6 (10.0) |
| **Awareness of day/time/people**<br>includes knowing where you are and knowing the direction you are going | 1 (8.3) | 2 (16.7) | 1 (8.3) | 0 (0.0) | 0 (0.0) | 4 (6.7) |
| **Planning**<br>includes difficulty understanding instructions | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (8.3) | 1 (1.7) |

a The "other" category included issues such as what the future holds/uncertainty/noticing a decline (n = 7), patients feeling as though they are or could become a burden (n = 6), care partners' need to repeating themselves (n = 4), care partners' frustration/needing patience (n = 2), care partners' difficulty keeping on top of patient and family needs and schedules (n = 2), the patient's inability "to do anything" (n = 1), safety issues (n = 1), and the patient sleeping a bit (n = 1).
Note: Information was collected from patients only from Groups 1, 2, and 3; from care partners and patients (when able to self-report) in Group 4; and from care partners only in Group 5.

***Impacts:***

- All participants in Groups 1, 2, and 3 reported experiencing one or more impacts as a result of their AD-related symptoms.
- More than half of the sample in each of the three groups reported an impact on mood and emotions (n=23; 63.9%).
- Nearly half of the overall patient sample and at least half of the patients in Groups 2 and 3 reported an impact on their social life/activities.
- The number of patients reporting AD-related impacts on daily activities (increased reliance on care partners and increased need for assistance with personal hygiene) was greater in Group 3 than Groups 1 and 2.

> *Well, it [difficulty concentrating/focusing] frustrates you. It overwhelms you, you know. And you're like, 'Am I crazy?' And I say, 'Why is it that I, nobody else has a problem with this, but I have a problem with this. Why can't I get this together?'*

> *I guess maybe going out less with other couples because I don't want them really to know. So I guess I kind of stay back and away. Maybe they would start talking about something we did and I wouldn't remember… I really don't want to go.*

### Table 5. Frequency of Impacts Reported by Patients in Groups 1, 2, and 3

| Impact, n (%) | AD Classification: Group 1 (n = 12) | Group 2 (n = 12) | Group 3 (n = 12) | Total (N = 36) |
|---|---|---|---|---|
| **Mood or emotions have changed** (e.g., is more frustrated, stressed, anxious, worried, impatient/<br>irritable, angry, scared/frightened, overwhelmed, or sad/depressed) | 8 (66.7) | 6 (50.0) | 9 (75.0) | 23 (63.9) |
| **Social activities or outgoingness have decreased** (e.g., limits where he or she will go, prefers to stay at home, is less outgoing) | 4 (33.3) | 7 (58.3) | 6 (50.0) | 17 (47.2) |
| **Daily activities have become more difficult to complete** (e.g., has difficulty with cooking, performing household chores, running errands) | 3 (25.0) | 3 (25.0) | 6 (50.0) | 12 (33.3) |
| **Working has become impossible or more challenging** (e.g., stopped working or works less, has increased challenges or stress with work tasks and may have changed tasks to things that were easier to do/not as challenging for memory, planning to retire in the near future) | 4 (33.3) | 3 (25.0) | 3 (25.0) | 10 (27.8) |
| **Leisure activities have decreased or ceased** (e.g., stopped or limits hobbies, travel, volunteering) | 5 (41.7) | 1 (8.3) | 4 (33.3) | 10 (27.8) |
| **Reliance on care partner has increased** | 0 | 3 (25.0) | 6 (50.0) | 9 (25.0) |
| **Other*** | 2 (16.7) | 5 (41.7) | 1 (8.3) | 8 (22.2) |
| **Driving has become impossible or more challenging** (e.g., gets lost while driving, has trouble with night driving, does not drive far distances, needs to drive less or stop driving, uses more public transportation instead of driving) | 1 (8.3) | 2 (16.7) | 3 (25.0) | 6 (16.7) |
| **Future plans and arrangements have been made** (e.g., has performed estate planning, retirement, living arrangements, financial plans) | 3 (25.0) | 2 (16.7) | 1 (8.3) | 6 (16.7) |
| **Sleep is disturbed** | 3 (25.0) | 1 (8.3) | 2 (16.7) | 6 (16.7) |
| **Assistance with finances or paying bills is needed** | 0 | 2 (16.7) | 2 (16.7) | 4 (11.1) |
| **Assistance with personal hygiene is needed** (e.g., requires help with showering and bathing) | 0 | 0 | 2 (16.7) | 2 (5.6) |
| **Living full-time with family other than spouse/partner has become necessary** | 0 | 0 | 1 (8.3) | 1 (2.8) |

a The "other" category included impacts such as everything happening at a slower pace (n = 2; GIRI, n = 1; GIRI, n = 1;); feeling like there is nothing he or she can do to make things better (n = 1 (GIRI); not feeling comfortable going places at night (n = 1 [GIRI]); needing to explain what he or she wants to say when unable to find the right word (n = 1 [GIRI]); checking to make sure appliances and lights are not left on (n = 1 [GIRI]); running late due to misplacing things (n = 1 [GIRI]); handwriting has declined (n = 1 [GIRI]); feeling that life is different in general (n = 1 [GIRI]); being unable to enjoy going and doing things due to forgetting about other responsibilities (n = 1 [GIRI]); needing to stick to familiar tasks and places (n = 1 [GIRI]); thinking and talking things through a little bit more (n = 1 [GIRI]); needing to be more organized and aware (n = 1 [GIRI]); needing to be more cautious (n = 1 [GIRI]).
B Multiple impacts could be reported by any individual participant.

### Table 6. Frequency of Care Partner Impacts

| Impact, n (%) | AD Classification: Group 4 (n = 12) | Group 5 (n = 12) | Total (N = 24) |
|---|---|---|---|
| **Daily responsibilities are impacted** (e.g., needs to supervise and drive patient more, roles have changed, daily chores (e.g., cooking) have been impacted) | 12 (100.0) | 12 (100.0) | 24 (100.0) |
| Constant supervision of patient is required | 10 (83.3) | 7 (58.3) | 17 (70.8) |
| **Mood or emotions have changed** | 11 (91.7) | 8 (66.7) | 19 (79.2) |
| Feeling bad or guilty more frequently | 5 (41.7) | 2 (16.7) | 7 (29.2) |
| **Social activities have decreased** (e.g., time with friends for lunch/dinner/something fun, parties/celebrations, and family events has decreased) | 10 (83.3) | 9 (75.0) | 19 (79.2) |
| **Leisure activities have decreased or ceased** (e.g., hobbies, travel, going out to eat, or volunteering has decreased or ceased) | 8 (66.7) | 10 (83.3) | 18 (75.0) |
| **Responsibilities for patient's bills or money management have increased/ financial burden has increased** | 9 (75.0) | 9 (75.0) | 18 (75.0) |
| **Other*** | 10 (83.3) | 8 (66.7) | 18 (75.0) |
| **Assistance with patient's self-care, cooking, and medications has increased** (e.g., showering, making sure patient takes medication, toileting, cooking) | 7 (58.3) | 9 (75.0) | 16 (66.7) |
| Assistance with toileting has increased (e.g., taking patient to bathroom, reminding him or her to use the bathroom, cleans up accidents related to incontinence) | 1 (8.3) | 4 (33.3) | 5 (20.8) |
| **Physical health has suffered** (e.g., sleep, diet, exercise, weight gain) | 7 (58.3) | 9 (75.0) | 16 (66.7) |
| **Prevention of patient driving has become necessary** | 6 (50.0) | 8 (66.7) | 14 (58.3) |
| **Reminders to the patient are more frequent** (e.g., reminding more frequently to eat, take meds, shower, that he/she has appointments) | 9 (75.0) | 4 (33.3) | 13 (54.2) |
| **Repeating to the patient has become more frequent** | 8 (66.7) | 5 (41.7) | 13 (54.2) |
| **Patient welfare has become an increasing concern** (safety concerns (e.g., starting a fire, wandering, house flooding) or fears of the patient being taken advantage of have increased) | 9 (75.0) | 4 (33.3) | 13 (54.2) |
| **Working or schooling has become impossible or more challenging** (e.g., stopped working or decreased hours due to needing to supervise patient, needs to take off more from work/use vacation time/sick days to care for patient, needs to coordinate patient's care when at work, needs to shift work hours to provide care for patient/needs a flexible job, needs to work or study at home, having trouble finding time to continue schooling) | 7 (58.3) | 5 (41.7) | 12 (50.0) |
| **Planning and making decisions on behalf of the patient has become necessary** | 8 (66.7) | 3 (25.0) | 11 (45.8) |
| **Moving in/living with the patient was required in order to provide more assistance** | 3 (25.0) | 3 (25.0) | 6 (25.0) |
| **Use of locks, alarms, location-tracking apps, and/or cameras to keep patient safe/prevent disasters (e.g., fires and flooding) has become necessary** | 2 (16.7) | 3 (25.0) | 5 (20.8) |
| **In-home professional help is employed** | 1 (8.3) | 3 (25.0) | 4 (16.7) |
| **Future plans and arrangements have been made** (e.g., estate planning, retirement, living arrangements, financial plans) | 2 (16.7) | 2 (16.7) | 4 (16.7) |

Note: Both patients and care partners in Group 4 were asked about impacts (because patients were not able to reliably report on impacts, impacts to only care partners in Group 4 are shown. Impacts shown are those reported by care partners in Groups 4 and 5 who were asked to report on impacts to care partners and patients.
A The "other" category included impacts such as having more general responsibility/acting as the stack (n = 3 [GIRI]); concerns about getting AD as well (n = 2; GIM, n = 1; GIR), n = 1); needing to walk the patient through instructions (n = 1 GIM, n = 1; GIR), n = 1); needing to walk the patient through instructions (n = 1 GIM, n = 1; GIR), n = 1); having to be the patient to attend the caregiver's child's activities (n = 1 [GIM]); being busy/having no time due to needing to go to doctor's appointments (n = 1 [GIM]); trying to keep the patient calm (n = 1 [GIM]); developing resolve at home/ready to keep the patient more organized (n = 1 [GIM]); being unable to do anything (n = 1 [GIM]); being unable to do things with friends (n = 1 [GIR]); being unable to do things around the house (n = 1 [GIR]); being unable to do things around the house (n = 1 [GIR]); having to answer questions from the patient that he or she previously would have known the answer to (n = 1 [GIR]); feeling as though they are a child again who needs to report to their parent, who is the care recipient (n = 1 [GIR]); having resentful of other siblings who does not help with caregiving (n = 1 [GIR]); needing help from brother, children, and friends for caretaking (n = 1 [GIR]); doing anything for she can to make the patient happy and get the most out of life (n = 1 [GIR]); having a more scheduled lifestyle (n = 1 [GIR]); having to be more independent (n = 1 [GIR]); and feeling that things are unpredictable (n = 1 [GIR]).

***Treatment Related Outcomes:*** Improvement/restoration of memory was the most desired AD treatment outcome (n=40; 67%), followed by stopping AD progression (n=35; 58.3%).

> *The medication would slow down my forgetfulness…if it slowed it down I'd have more years to take care of myself and not have to worry about other people taking care of me.*

> *Just, if it can't cure it, just kind of stop the progression of it. Just like leave if it where it is. If the worse thing I have is momentary lapses every few days, 3 days, and I'm still on the path I am now, I'm happy.*

### Table 7. Treatment-related Outcomes Most Important to Patients With or at Risk for AD and Care Partners

| Ideal treatment outcome, n (%) | AD Classification: Group 1 (n = 12) | Group 2 (n = 12) | Group 3 (n = 12) | Group 4 (n = 12) | Group 5 (n = 12) | Total (N = 60) |
|---|---|---|---|---|---|---|
| Improve/restore memory | 9 (75.0) | 7 (58.3) | 5 (41.7) | 9 (75.0) | 10 (16.7) | 40 (66.7) |
| Stop AD progression | 8 (66.7) | 6 (50.0) | 7 (58.3) | 7 (58.3) | 7 (58.3) | 35 (58.3) |
| Slow AD progression | 4 (33.3) | 6 (50.0) | 3 (25.0) | 5 (41.7) | 2 (16.7) | 20 (33.3) |
| Improve ability to function, perform ADLs | 4 (33.3) | 0 (0.0) | 1 (8.3) | 5 (41.7) | 5 (41.7) | 15 (25.0) |
| Improve short term memory | 3 (25.0) | 3 (25.0) | 3 (25.0) | 3 (25.0) | 2 (16.7) | 14 (23.3) |
| Remember family | 5 (41.7) | 0 (0.0) | 2 (16.7) | 3 (25.0) | 2 (16.7) | 12 (20.0) |
| Cure AD | 1 (8.3) | 3 (25.0) | 1 (8.3) | 3 (25.0) | 3 (25.0) | 11 (18.3) |
| Help remain independent, not be a burden | 1 (8.3) | 0 (0.0) | 0 (0.0) | 2 (16.7) | 3 (25.0) | 6 (10.0) |
| Remove plaque/tangles/ stop growth | 2 (16.7) | 0 (0.0) | 1 (8.3) | 0 (0.0) | 3 (25.0) | 6 (10.0) |
| Be sharper, more focused | 0 (0.0) | 3 (25.0) | 0 (0.0) | 1 (8.3) | 1 (8.3) | 5 (8.3) |
| Be aware of self and surroundings | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (8.3) | 3 (25.0) | 4 (6.7) |
| Improve long term memory | 1 (8.3) | 0 (0.0) | 0 (0.0) | 2 (16.7) | 0 (0.0) | 3 (5.0) |
| Stop hallucinations | 0 (0.0) | 0 (0.0) | 0 (0.0) | 1 (8.3) | 0 (0.0) | 1 (1.7) |

## CONCLUSION

1. Results from the current study suggest that issues with various aspects of cognitive functioning—particularly in memory and communication/language—are present even in the earliest stages, including individuals who have not received a formal diagnosis (Group 1), those with MCI (Group 2) and those with mild AD (Group 3). Per inclusion criteria, all group 1 participants should not be showing signs of clinical impairment, which is consistent with our findings. However, all 12 Group 1 participants reported some current "problem" with cognitive functioning.

2. Results also suggest that the data on Group 3 participants (those with mild AD) are much more variable than the patterns seen in other groups. These data, combined with observations recorded during the interviews, suggest that the sample of individuals with mild AD was much more heterogeneous than some of the other groups in the study. This broad heterogeneity may suggest differences in how clinicians view the diagnosis of mild AD and may indicate that we need to assess differences in patients' priorities within this group and not just between this group and other groups.

3. Regardless of the reporter, across both early and late stages of AD, improved memory, disease modification, and remaining independent (including in the ability to perform daily activities) were the AD treatment outcomes considered to be most important to individuals with or at risk of AD and to their care partners.

4. Traditional neuropsychological assessments may measure various aspects of cognitive functioning often impaired by AD, but it is unclear whether they can measure the often-subtle changes that are important to individuals with AD and care partners (e.g., decreased socialization due to concerns about forgetting names or losing track when speaking to others; depressed or anxious thoughts due to changes in memory; increased dependence on others for even basic chores). Data from the current study provide some evidence that changes seen in certain domains of traditional neuropsychological assessments may correlate with changes that are meaningful to individuals with or at risk for AD and their care partners. Again, this provides a foundation for further research.

5. Results from this study will inform the second phase of the WMM project—the development of a quantitative study to elicit the relative importance of these COIs to people at risk for and living with AD and their caregivers. Collectively, the WMM results lay the foundation for the development of recommendations for clinical outcomes assessments in research studies.

**About AD PACE:** UsAgainstAlzheimer's AD PACE initiative, is a pre-competitive collaboration that brings together nonprofit entities, people living with AD, caregivers, academic leaders, industry, and government consultants to identify and quantify treatment-related needs, preferences, and priorities among individuals representing different stages of the AD continuum and their care partners to inform drug development, regulatory and reimbursement decision-making. For more information, visit www.usagainstalzheimers.org/networks/ad-pace