

Safety of Disclosing Amyloid Status in Cognitively Normal Older Adults

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Amyloid PET Appropriate Use Criteria

- Appropriate
 - Persistent and progressive MCI
 - Possible AD with atypical course
 - Atypically early age-of-onset
- Inappropriate
 - Typical AD
 - To determine dementia severity
 - Asymptomatic individuals

Johnson, KA et al, Alzheimer's and Dementia, 2013

Grill JD, Johnson DK, Burns JM, Neurodegenerative Disease Management, 2013

Ethical Issues in Disclosing Amyloid Status

- Clinical significance imprecisely understood
- Psychological risks not studied
- Proven interventions not available
- Social, legal, or healthcare implications
- Not elevated result may give false reassurance
- Autonomy
- Prior research suggests risk info can be delivered without harm
- May facilitate lifestyle changes

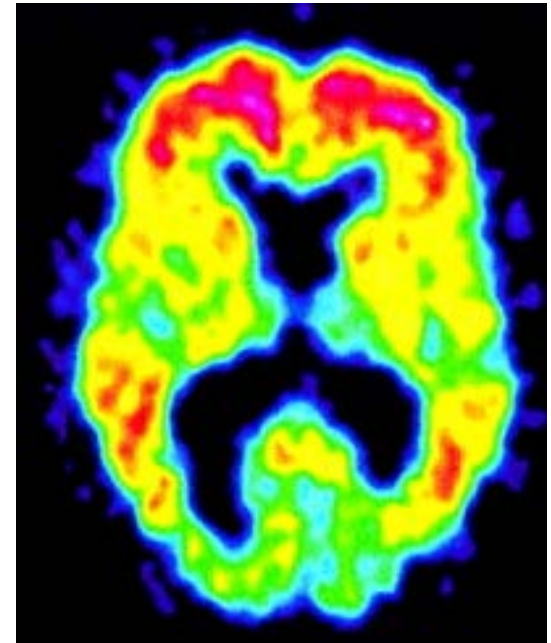
Grill JD, Johnson DK, Burns JM. Neurodegenerative Disease Management, 2013

New Era of AD Prevention Trials

- Identify Alzheimer changes prior to onset of symptoms
 - Window of opportunity
- Foundation for AD prevention trials
 - Exercise
 - KU APEX study
 - Anti-amyloid strategies
 - A4 Study; Janssen EARLY Study

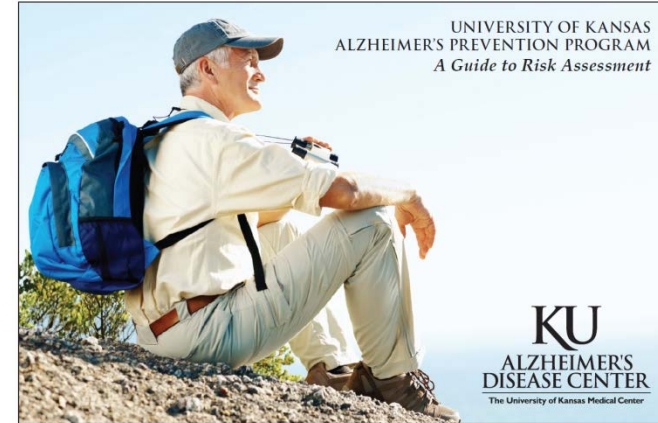
Alzheimer's Prevention Program Exercise Trial (APEX)

- Cognitively normal with elevated brain amyloid
- RCT or 1-year of aerobic exercise
 - Amyloid PET
 - MRI Brain low
 - Cognition
- **Sub-study**: Assess the effect of disclosure on depression, anxiety, and test-related distress



APEX Disclosure and Assessments

- Disclosure process
 - Amyloid Imaging Guide
 - Pre-Scan Counseling
 - Disclosure Counseling
- Screening for anxiety/depression
 - BAI > 15; GDS > 5
 - Clinician impression
- Assessments (*Baseline, Disclosure, 6-week, 6-month*)
 - Depression (CES-D)
 - Anxiety (Beck Anxiety Index)
 - Impact of Genetic Testing Scale – distress subscale



Summary of Results

- Disclosing amyloid PET results to CN appears to be safe and well tolerated
 - n=97 (27 elevated, 70 non-elevated)
 - No effect on depression symptoms
 - Minimal, non-sustained effect on anxiety
 - Minimal effect on test-related distress
 - Predicted by baseline anxiety and depression symptoms

Burns et al, Alzheimer's & Dementia, 2017

APEX Screening Participants

- N=101: n=1 excluded due to elevated anxiety (BAI>10);
n=3 encouraged to not continue due to perceived anxiety

Table 1
Descriptive statistics

Variables	Amyloid elevated (<i>N</i> = 27)	Amyloid nonelevated (<i>N</i> = 70)
Age, y	73.1 (4.8)	71.2 (5.7)
Education, y	16.2 (3.0)	16.8 (2.4)
Female, <i>N</i> (%)	14 (51.9)	45 (64.3)
Caucasian, <i>N</i> (%)	27 (100)	67 (95.7)
Hispanic, <i>N</i> (%)	0 (0)	1 (1.4)
Family history, <i>N</i> (%)	3 (11.1)	11 (15.7)
MMSE	29.2 (0.9)	29.1 (1.2)

KU Disclosure Talking Points

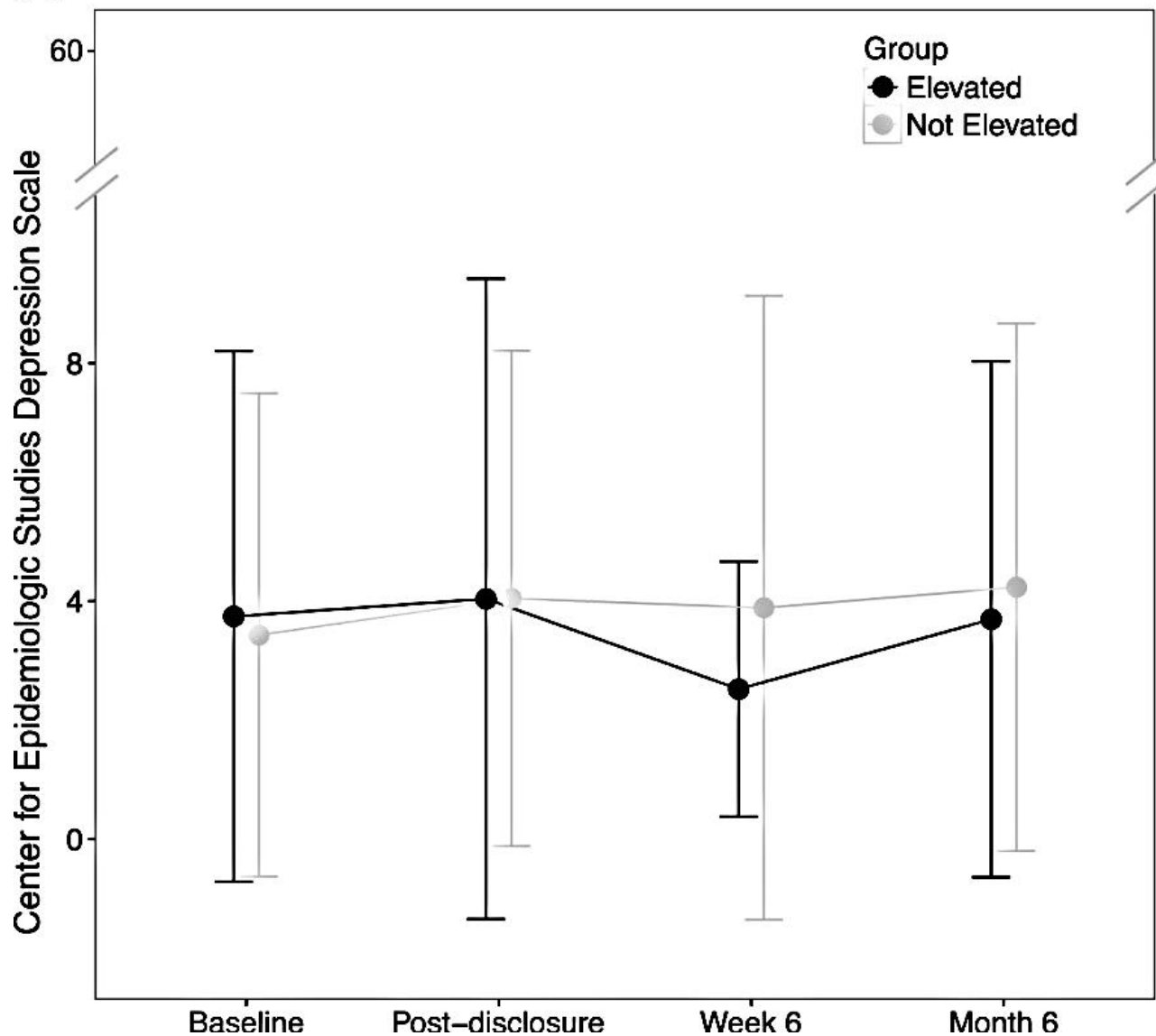
- Pre-scan Counseling

- Written materials before visit
- “Amyloid is a risk factor”
 - Review AD risk factors
- Possible results
 - Elevated (not “positive”)
 - Not a diagnosis of AD
 - Indicates higher risk
 - Don’t know how high the risk or the timeframe
 - Not Elevated (not “negative”)
 - Likely lower risk of AD
 - Does not mean you will never develop AD
- We do not share with PCP, EMR

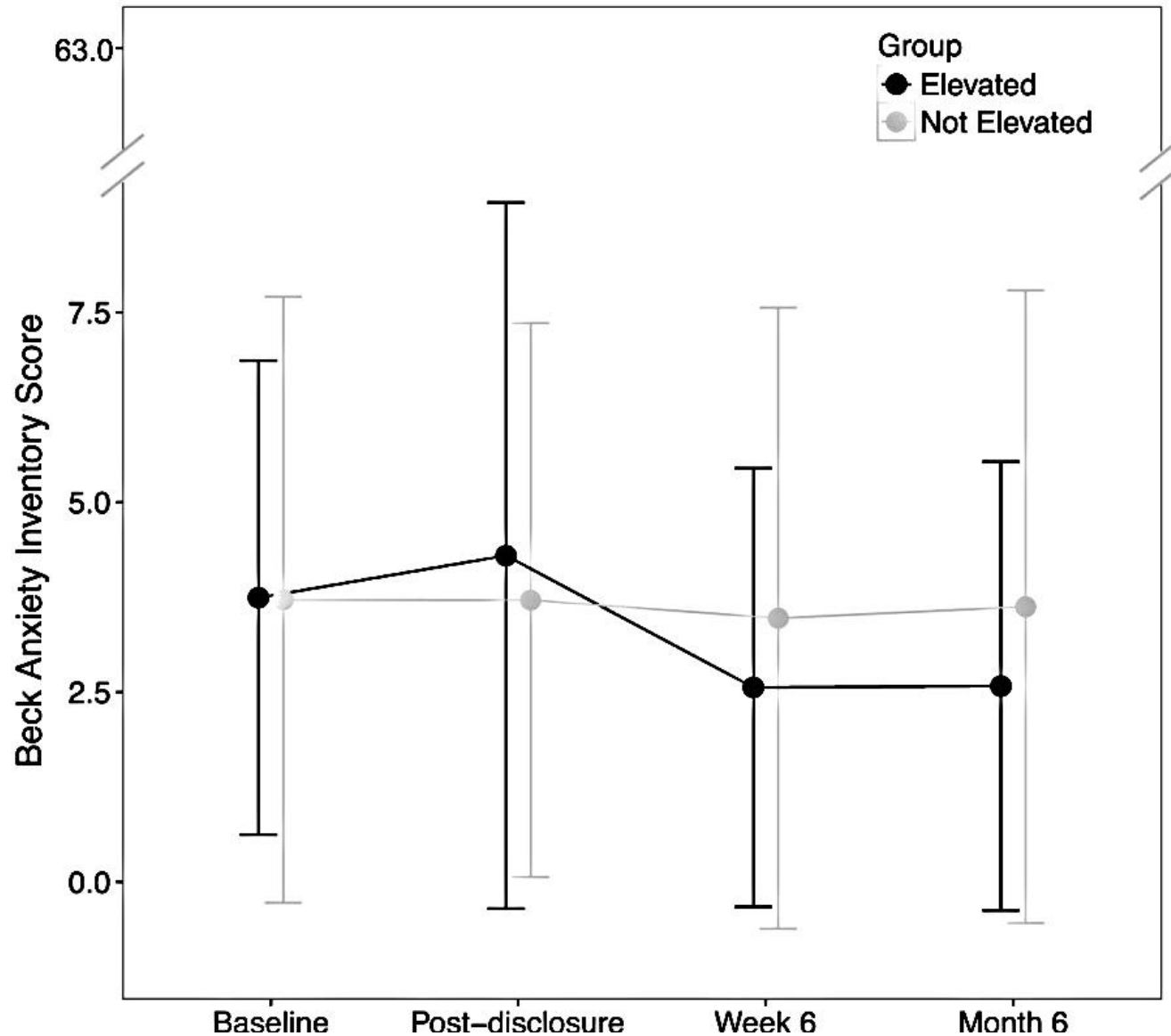
- Disclosure Session

- Same clinician
- Review meaning of possible results
 - Elevated
 - Not elevated
- Disclose results
 - Review meaning of their result
- Provide feedback on lifestyle, diet, exercise
- Information on ongoing prevention studies

Depressive Symptoms (CES-D)



Anxiety Symptoms (BAI)



Disclosure-Related Distress

(Impact of Genetic Testing)

- IGT distress composite higher at 6wk and 6mo in amyloid elevated vs amyloid nonelevated

– 12 items

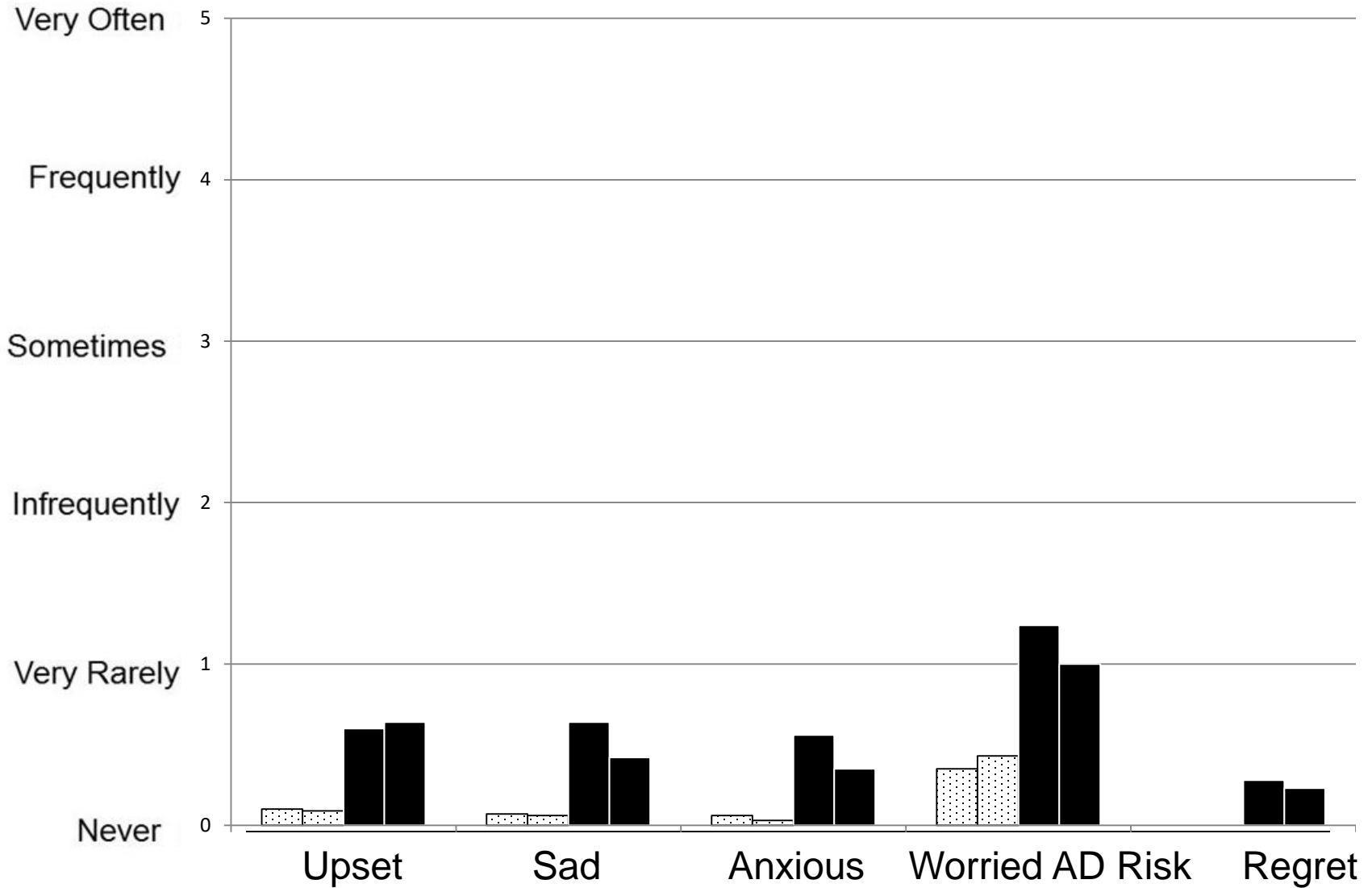
- *0=Never*
- *1=Very Rarely*
- *2=Infrequent*
- *4=Frequent*
- *5=Very Often*

Upset about my test results
Sad about my test result
Anxious about test result
Perceived loss of control
Problems enjoying life because of test result
Worry about risk of AD
Uncertain about what test means for my AD risk
Uncertain about what test means for children/family's AD risk
Frustration due to lack of AD prevention guidelines
Concern regarding how test result will affect insurance status
Perceived difficulty talking about test result with family
Regret about getting test results

Disclosure-Related Distress (Impact of Genetic Testing)

ITEMS	6 Weeks		6 Months	
	Nonelevated	Elevated	Nonelevated	Elevated
Upset	0.10 (0.60)	0.60 (1.04)*	0.09 (0.41)	0.31 (0.62) [†]
Sad	0.07 (0.40)	0.64 (1.04)*	0.06 (0.38)	0.42 (0.64)*
Anxious	0.06 (0.38)	0.56 (0.96)*	0.03 (0.17)	0.35 (0.56)*
Control	0.22 (0.68)	0.24 (0.52)	0.29 (0.79)	0.31 (0.68)
Lack Enjoyment	0.0 (0.0)	0.12 (0.44) [†]	0.0 (0.0)	0.08 (0.27) [†]
Uncertain test	0.35 (0.66)	1.24 (1.13)*	0.43 (0.78)	1.00 (1.20) [†]
Uncertain risk	0.26 (0.63)	1.00 (1.38)*	0.26 (0.78)	0.69 (1.01)*
Frustration	0.28 (0.70)	0.88 (1.01)*	0.23 (0.69)	0.77 (1.07)*
Insurance	0.35 (0.78)	0.88 (1.13) [†]	0.39 (0.93)	0.92 (1.20)*
Difficulty talking	0.07 (0.40)	0.20 (0.58)	0.09 (0.33)	0.04 (0.20)
Regret	0.01 (0.12)	0.30 (0.76)*	0.04 (0.21)	0.17 (0.38)
Regret	0.0 (0.0)	0.28 (0.68)*	0.0 (0.0)	0.23 (0.59)*
TOTAL	1.77 (3.73)	7.17 (8.54)*	1.91 (3.65)	5.29 (6.08)[†]

Disclosure-Related Distress



Caveats

- Limited generalizability
 - Highly screened group, interested in 1 year aerobic exercise trial, 24 of 27 enrolled in trial
 - Not applicable to clinical population
- Screened for anxiety and depression (n=4 excluded)
 - Clinician judgment not replaced by surveys
- Small sample size
- Impact may change as risk estimates become more precise

Conclusions

- Disclosing amyloid PET results appears safe in setting of clinical trial with pre- and post-counseling
 - No measurable effect on depression
 - Minimal effect on anxiety and test-related distress
- Importance of structured disclosure process
 - Attention to baseline levels of anxiety and depression
 - Repetitive talking points, attention to language
- Future research: behavior change, health literacy
- *Amyloid Imaging Guide, Talking Points available for download: Burns et al, Alzheimer's and Dementia 13(2017)1024-1030*

KU Alzheimer's Disease Center



Key KU ADC Collaborators

Russell Swerdlow, MD

Eric Vidoni, PhD

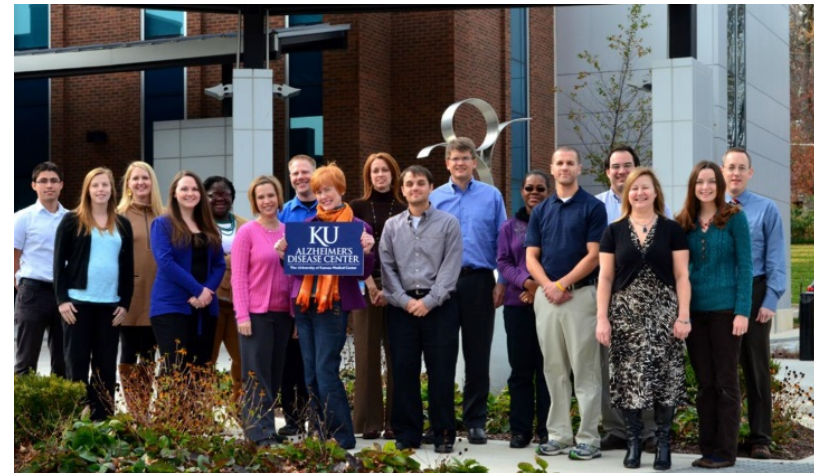
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