- Anticholinergic burden ACB:
- Sedation
- Dry mouth
- Constipation
- Urinary Retention
- Blurred vision
- Postural hypotension
- Cognitive decline
- Mortality

http://www.acbcalc.com/

Anticholinergic Drug Exposure and the Risk of Dementia

JAMA Intern Med. 2019;179(8):1084-1093

- The study evaluated whether exposure to anticholinergic drugs was associated with dementia risk in 58 769 pts. with dementia and 225 574 controls >55 years
- Information on prescriptions for 56 drugs with strong anticholinergic properties was used to calculate measures of cumulative anticholinergic drug exposure

Anticholinergic Drug Exposure and the Risk of Dementia

JAMA Intern Med. 2019;179(8):1084-1093

There were significant increases in dementia risk for:

- Anticholinergic antidepressants 1.29
- Antiparkinsons drugs 1.52
- Antipsychotics 1.70
- Bladder antimuscarinic drugs 1.65
- Antiepileptic drugs 1.39

Table 3. Numbers of Case Patients and Controls Prescribed Different Types of Anticholinergic Drugs in the 1 to 11 Years Before the Index Date

Anticholinergic Drug Group	Case Patients (n = 58 769)				Controls (n = 225 574)			
	No. (%)		Median (IQR)		No. (%)		Median (IQR)	
	No. With Prescriptions	Total Prescriptions	No. of Prescriptions[a]	Total Dose[a,b]	No. With Prescriptions	Total Prescriptions	No. of Prescriptions[a]	Total Dose[a,b]
Any anticholinergic drugs	33 253 (56.6)	952 263 (100)	6 (2-34)	214 (42-1531)	115 096 (51.0)	2 504 790 (100)	4 (1-22)	136 (30-982)
Antihistamines	6457 (11.0)	34 151 (3.6)	1 (1-3)	30 (23-84)	23 145 (10.3)	117 271 (4.7)	1 (1-3)	30 (27-84)
Antidepressants	15 938 (27.1)	427 489 (44.9)	6 (1-35)	280 (62-1876)	52 560 (23.3)	1 141 284 (45.6)	4 (1-25)	196 (56-1350)
Antivertigo/ antiemetic drugs	13 969 (23.8)	79 673 (8.4)	2 (1-4)	20 (9-56)	48 990 (21.7)	249 214 (9.9)	1 (1-3)	19 (9-50)
Antiparkinson drugs	292 (0.5)	16 498 (1.7)	31 (3-91)	879 (105-3274)	527 (0.2)	25 412 (1.0)	22 (2-73)	541 (48-2333)
Antipsychotic drugs	1812 (3.1)	69 895 (7.3)	11 (2-51)	756 (119-3751)	3400 (1.5)	109 180 (4.4)	8 (1-46)	490 (84-2894)
Bladder antimuscarinic drugs	6864 (11.7)	170 064 (17.9)	8 (2-32)	330 (60-1461)	18 778 (8.3)	362 677 (14.5)	5 (1-23)	198 (56-1120)
Skeletal muscle relaxants	429 (0.7)	1361 (0.1)	1 (1-2)	23 (16-45)	1568 (0.7)	5202 (0.2)	1 (1-2)	24 (17-42)
Gastrointestinal antispasmodic drugs	4036 (6.9)	29 320 (3.1)	1 (1-4)	30 (13-120)	15 481 (6.9)	101 268 (4.0)	1 (1-3)	28 (13-112)
Antiarrhythmic drugs	49 (0.1)	2569 (0.3)	31 (5-88)	882 (175-2345)	172 (0.1)	8142 (0.3)	37 (5-77)	1148 (150-2436)
Antiepileptic drugs	1411 (2.4)	41 360 (4.3)	4 (1-39)	153 (42-2240)	4492 (2.0)	97 180 (3.9)	2 (1-20)	80 (30-970)
Antimuscarinic bronchodilator drugs	3878 (6.6)	79 883 (8.4)	8 (2-29)	300 (60-1330)	13 996 (6.2)	287 960 (11.5)	8 (2-29)	330 (67-1333)

Abbreviations: IQR, interquartile range; TSDD, total standardized daily dose.

[a] In patients with 1 or more prescriptions for drug.

[b] Cumulative dose calculated using TSDDs in exposure window.

Anticholinergic drugs prescribed in 1 to 11 year

Antidepressants

- Amitriptyline 10 mg 75 mg
- Clomipramine25 mg 100 mg
- Dosulepin 75 mg 150 mg
- Doxepin 10 mg 100 mg
- Imipramine 10 mg 100 mg
- Lofepramine 70 mg 105 mg
- Nortiptyline 10 mg 75 mg
- Paroxetine 10 mg 20 mg
- Trimipramine 50 mg 150 mg

Antiepileptics
Carbamazepine

Anti-nausea/vertigo

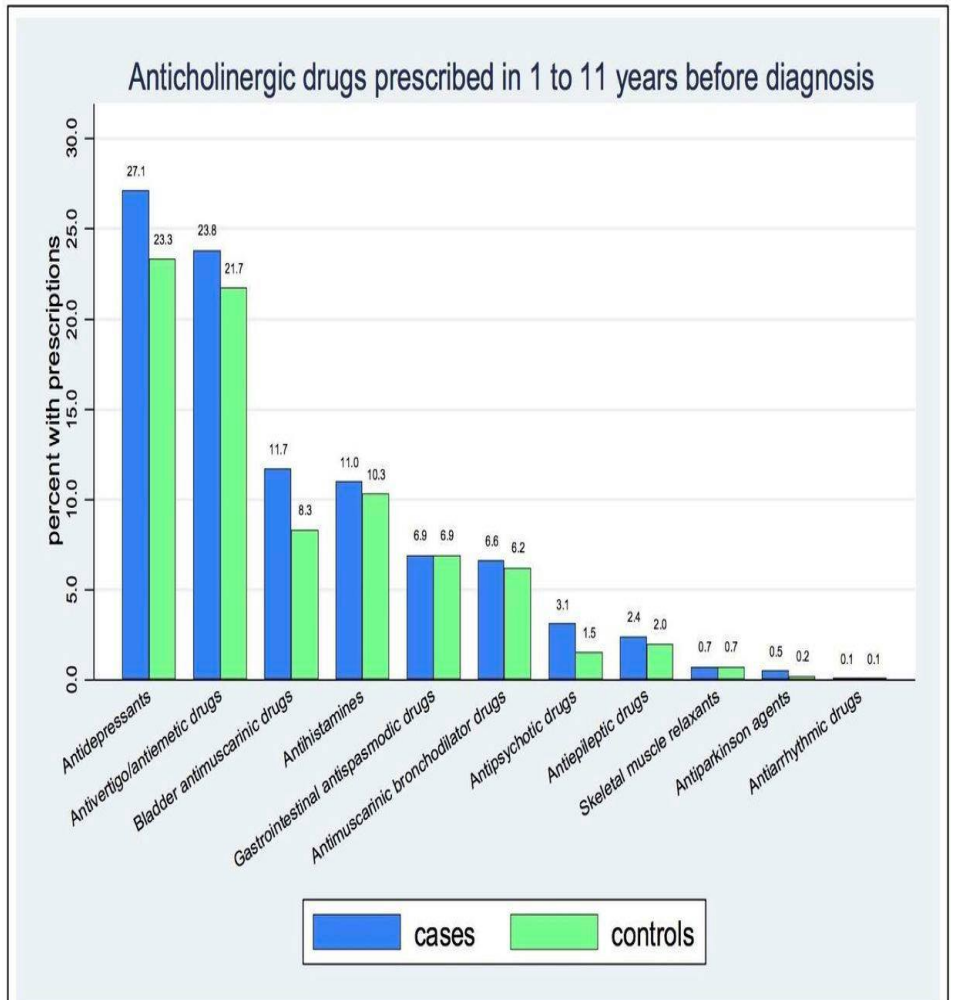
Cyclizine
Prochlorpromazime
Promethazine
Levomepromazine
Cyproheptadine

Antipsychocis

Olanzapine
Quetiapine
Thioridazine
Pericyazine

More drugs

eFigure 2 Proportions of cases and controls prescribed different types of anticholinergic drug in the 1 to 11 years before diagnosis



Incontinence drugs

- Oxybutinin
- Darifenacin
- Solifenacin
- Tropsium
- Tolteridone
- Propiverin

Ipratropium
Glycopyrronium

ACB
calculator

Start typing...

Score:
Medicine:
Brands:

Start typing...

Score:
Medicine:
Brands:

Start typing...

Score:
Medicine:
Brands:

+ Add new medicine

Reset

6 STEPS FOR SAFE PRESCRIBING

antipsychotics and benzodiazepines in residential aged care

Best practice for managing the behaviours and psychological symptoms of dementia uses a person-centred approach.

Antipsychotics and benzodiazepines have a very limited role in this area. They only work for a small percentage of people with specific indications. They also increase the risk of patient harm.

If you're thinking of prescribing these medicines to manage the behaviours and psychological symptoms of dementia, follow these 6 steps.

1. Consult the team

→ **Family and frontline workers know the person best.**

Talk to them to understand the person's behaviours, triggers, likes and dislikes.

2. Assess the person

↓ **What triggers the behaviour?**

Could the challenging behaviour be caused by pain, infection, delirium, depression, an event or recent change?

3. Use other strategies

Use the care and services plan to understand their patterns and needs. Check the behaviours are documented.

↓ **What other interventions have been tried?**

For example, physical activity, reassurance, music therapy. What worked? What else might you try?

Help frontline workers and families with problem solving to understand and manage behaviours.

In most cases, symptoms can be managed successfully without medication.

Prescribing antipsychotics or benzodiazepines should be the exception, not the norm.

If you do decide to prescribe

4. Get informed consent

← **Discuss the risks and benefits with the person/their decision maker.**

Get their informed consent before prescribing.

5. Start low and go slow

→ **Start on a low dose. Measure the response against the documented behaviours.**

Increase very gradually if needed.

If there is no improvement in 4 weeks, deprescribe.

6. Plan a review

→ **Review regularly (every 4–12 weeks) and keep measuring the response.**

Symptoms can change, so the need for medication can also change.

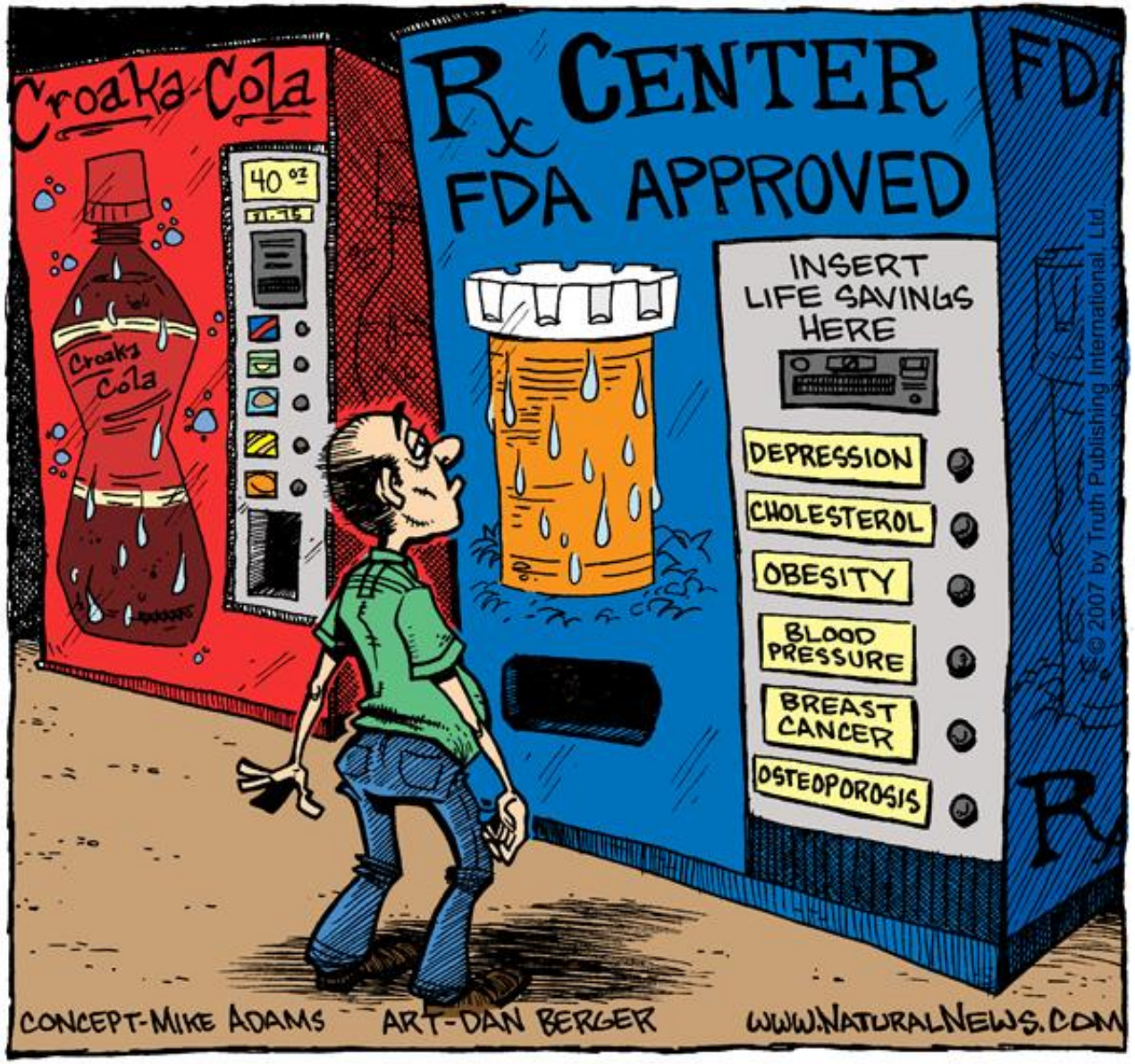
Try reducing the dose after a time. If the symptoms don't return, deprescribe.

Australian Government
Department of Health

→ See more information and resources at health.gov.au

COUNTERTHINK

WHAT THE DRUG COMPANIES REALLY WANT



Psychotropics Symptoms control / Comfort

Antipsychotics

Anxiolytics

Hypnotics

Antidepressants

Anti-Epileptics

Opioids

Cannabinoids

Orexin Inhibitors

Stimulants

The mainstay of the treatment of mood and behavioural disturbances is non-pharmacological

Psychotropic drugs should be reviewed after no more **than 3 months** and the dose reduced and stopped when possible,

with the goal of using

the **lowest effective dose for the shortest period of time.**

Recommendations from Australian and New Zealand Society for Geriatric Medicine

- 1.Do not use antipsychotics as the first choice to treat behavioural and psychological symptoms of dementia.
- 2.Do not prescribe benzodiazepines or other sedative-hypnotics to older adults as first choice for insomnia, agitation or delirium.
- 4.Do not prescribe medication without conducting a drug regimen review.
- 5.Do not use physical restraints to manage behavioural symptoms of hospitalized older adults with delirium except as a last resort.

15G Chemical restraint to be used only as a last resort

- an approved health practitioner **who has day-to-day knowledge of the consumer has**:
- (i) assessed the consumer as **posing a risk of harm** to the consumer or any other person, and as requiring the restraint; and
- (ii) documented the assessment, unless the use of the restraint is necessary in an emergency; and
- (b) alternatives to restraint have been used for the consumer to the extent possible; and
- (c) the alternatives to restraint that have been considered or used have been documented, unless the use of the restraint is necessary in an emergency; and
- (d) the restraint is the least restrictive form of restraint possible; and
- (e) the approved provider has the informed consent of the consumer or the consumer's representative to the use of the restraint, unless the use of the restraint is necessary in an emergency.

Chemical Restraint Legislation

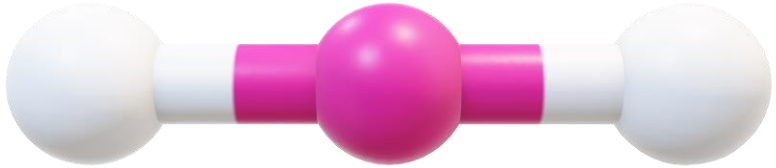
The use of medication or a chemical substance for the purpose of influencing a person's behaviour

other than medication prescribed for the treatment of, or to enable treatment of,

a diagnosed mental disorder,

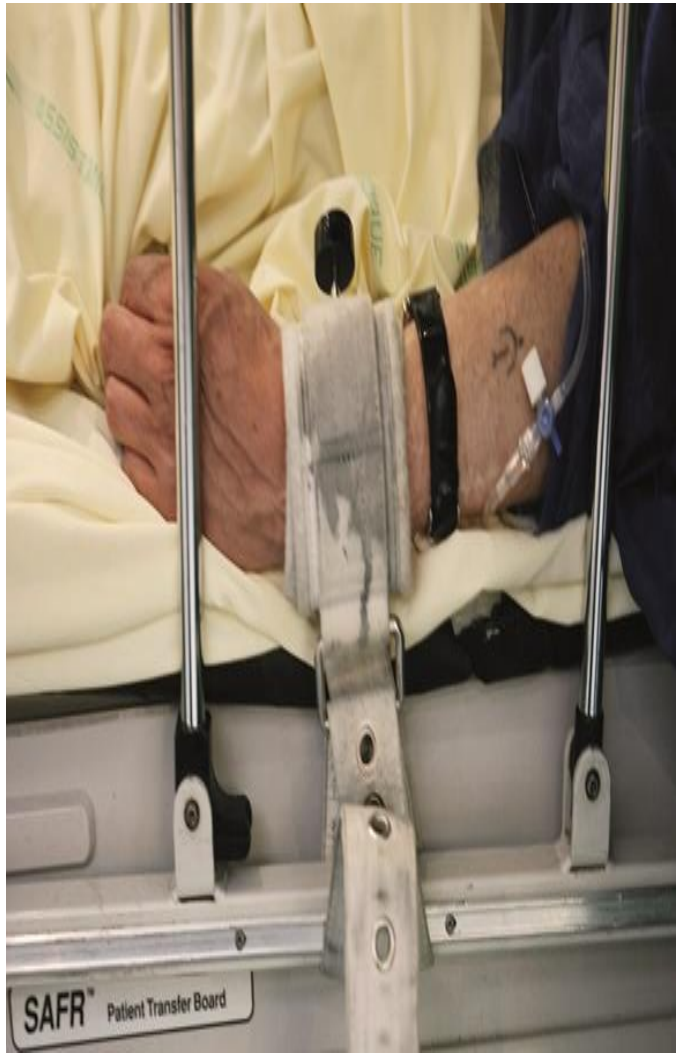
a physical illness or a physical condition".

Rapid Tranquilisation



Benzos - Antipsychotics

- the risks to either the patient or to other people;
- the consequences of potentially escalating violence;
- the risks of potential adverse effects of medicines



GABAminergic Neuro-inhibition

Spinal Cord

Hypothalamus

Hippocampus

Cerebral cortex

Substantia Nigra

cerebellum

Sedating High potency Benzos

Alprazolam

Lorazepam

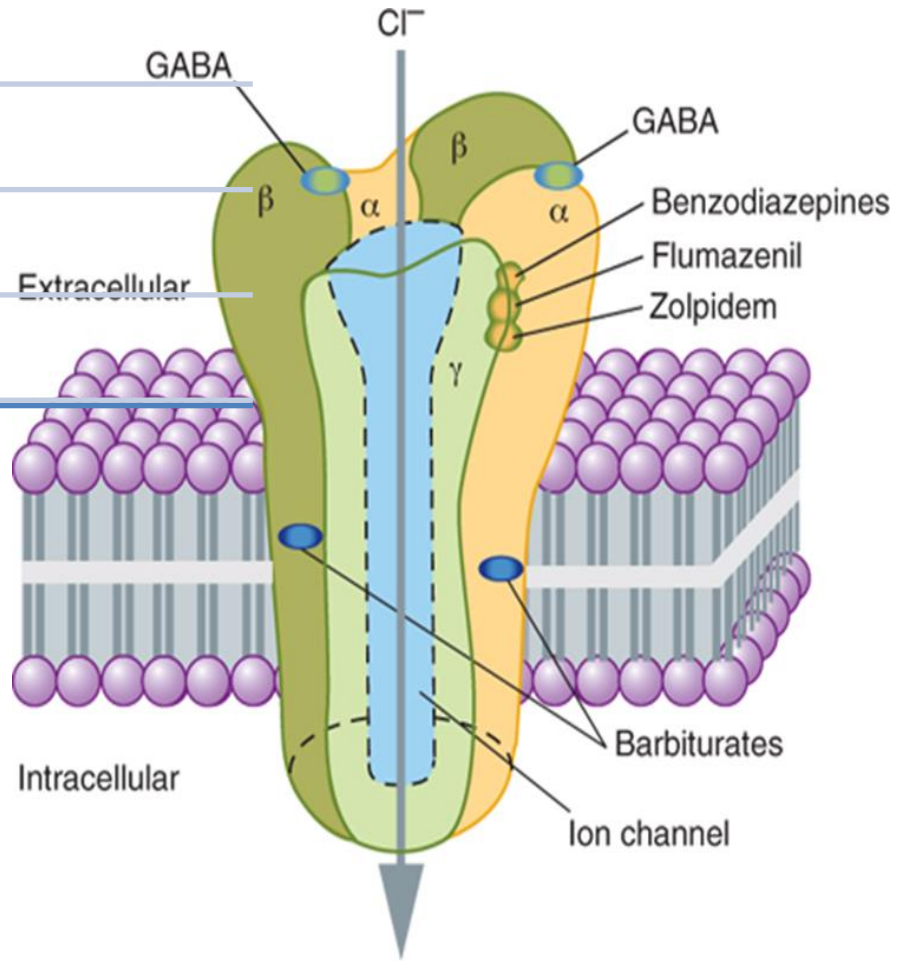
Clonazepam

Anxiolytic Low Potency Benzos

Oxazepam

Temazepam

Chlordiazepoxide



Source: Bertram G. Katzung, Todd W. Vanderah:
Basic & Clinical Pharmacology, Fifteenth Edition

Benzodiazepines for treatment of patients with delirium excluding ICU

Trial One : 58pts end stage Cancer 64yrs.old

(2017) Lorazepam 0.5-3 mg VS Haloperidol 0.5-2 mg

Trial Two: 30 pts end stage AIDS 39.6yrs old

(1996) Haloperidol VS Lorazepam VS Chlorpromazine

Side effects: Oversedation-confusion-ataxia

Efficacy and Tolerability of Benzodiazepines for the Treatment of Behavioral and Psychological Symptoms of Dementia:

A Systematic Review of Randomized Controlled Trials Amer Jr of Alzheimer's Disease & Other Dementias® 2014, Vol. 29(7) 565-574

- No significant difference between Benzos
- Well tolerated only 5 randomised control trials
- Range from 1975 to 2002 Heterogeneous
- Limited evidence

BENZODIAZEPINES

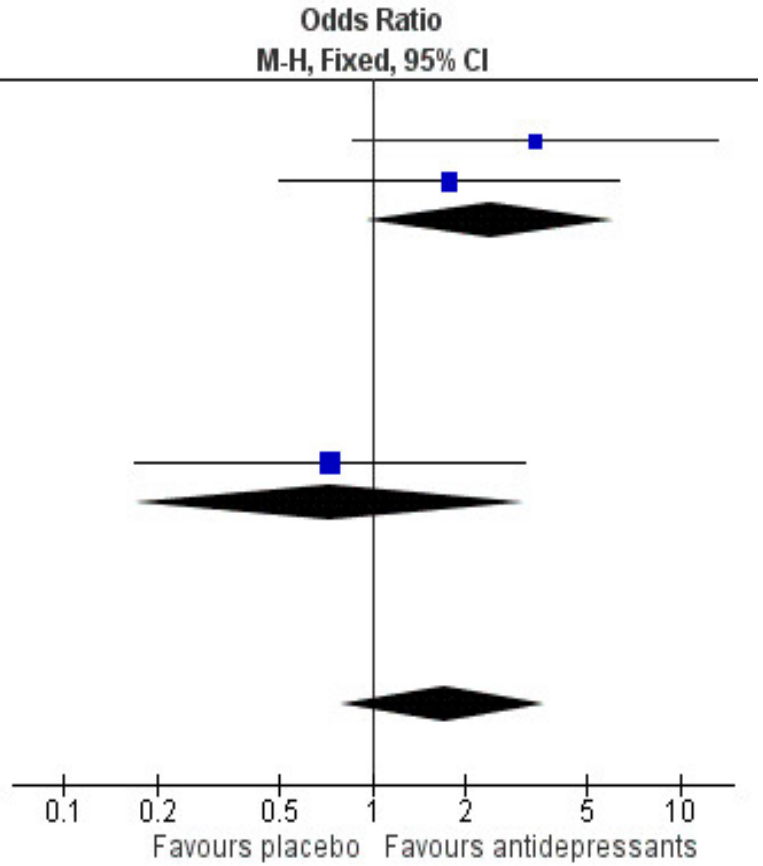
	Half-life (hours)	Half-life of metabolite	Overall action time	Main Use
Midazolam	2-4	2	Ultrashort<6	Hypnotic anticonvulsant
Zolpidem	2	---	Ultrashort 4	Hypnotic
Loraz Oxaz Temaz	8-12	---	Short 12-18	Anxiolytic Hypnotic
Alprazolam	6-12	6	Medium 24	Anxiolytic
Nitrazepam	16-40	---	Medium	Hypnotic
Diazepam Chlordiazepoxide	20-40	60	Long 24-48	Anxiolytic Muscle relaxant
Clonazepam	50	---	long	Anticonvulsant
Flurazepam	1	60	long	

Antidepressants for treating depression in dementia

Cochrane Library

Number of responders at 6-12 weeks

Study or Subgroup	Antidepressant Events	Total	Placebo Events	Total	Weight	Odds Ratio M-H, Fixed, 95% CI
1.4.1 SSRI						
Lyketsos 2003	11	24	4	20	23.3%	3.38 [0.87, 13.17]
Petracca 2001	8	17	8	24	34.7%	1.78 [0.50, 6.37]
Subtotal (95% CI)		**41**		**44**	**58.0%**	**2.42 [0.97, 6.09]**
Total events	19		12			
Heterogeneity: Chi² = 0.46, df = 1 (P = 0.50); I² = 0%						
Test for overall effect: Z = 1.89 (P = 0.06)						
1.4.2 venlafaxine						
de Vasconcelos 2007	8	14	11	17	42.0%	0.73 [0.17, 3.11]
Subtotal (95% CI)		**14**		**17**	**42.0%**	**0.73 [0.17, 3.11]**
Total events	8		11			
Heterogeneity: Not applicable						
Test for overall effect: Z = 0.43 (P = 0.67)						
Total (95% CI)		**55**		**61**	**100.0%**	**1.71 [0.80, 3.67]**
Total events	27		23			
Heterogeneity: Chi² = 2.30, df = 2 (P = 0.32); I² = 13%						
Test for overall effect: Z = 1.38 (P = 0.17)						
Test for subgroup differences: Chi² = 1.88, df = 1 (P = 0.17), I² = 46.9%						

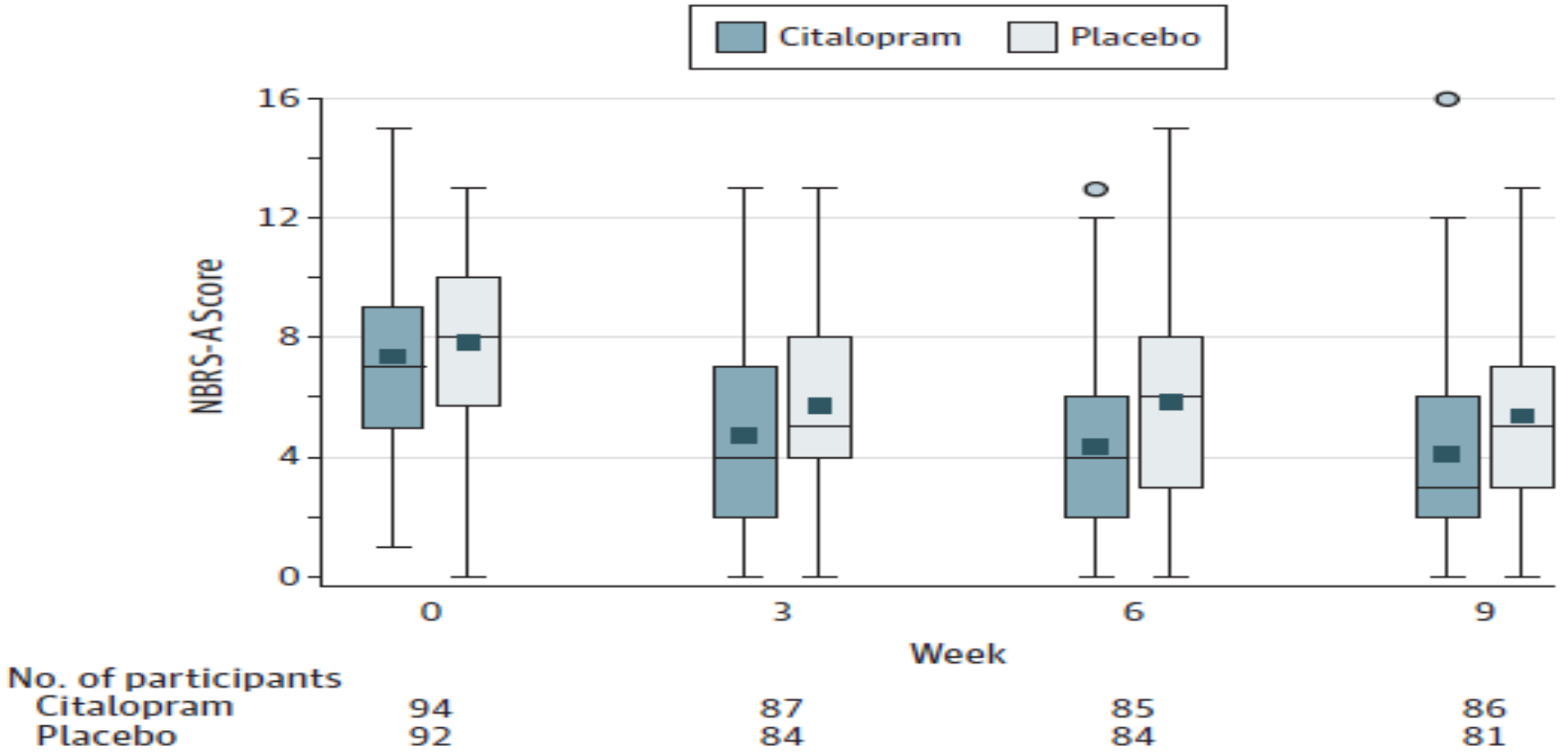


Effects of Citalopram on Neuropsychiatric Symptoms in Alzheimer's Dementia: Evidence From the CitAD Study

The American Journal of Psychiatry Vl173,Is5,May 2016

	Citalopram (n=86)	Placebo (n=83)	P-value
Delusions	**22 (26)**	**35 (42)**	**0.04**
Hallucinations	11 (13)	13 (16)	0.87
Agitation/Aggression	66 (77)	70 (84)	0.26
Depression / Dysphoria	24 (28)	30 (36)	0.24
Anxiety	**36 (42)**	**54 (65)**	**0.01**
Elation / Euphoria	3 (3)	5 (6)	0.28
Apathy / Indifference	41 (48)	42 (51)	0.83
Disinhibition	27 (31)	34 (41)	0.34
Irritability / Lability	**49 (57)**	**61 (73)**	**0.01**
Sleep / Nighttime Behavior	21 (24)	30 (36)	0.17
Appetite / Eating Disorder	22(26)	18(22)	0.56

CitAD RCT
Citalopram & Agitation

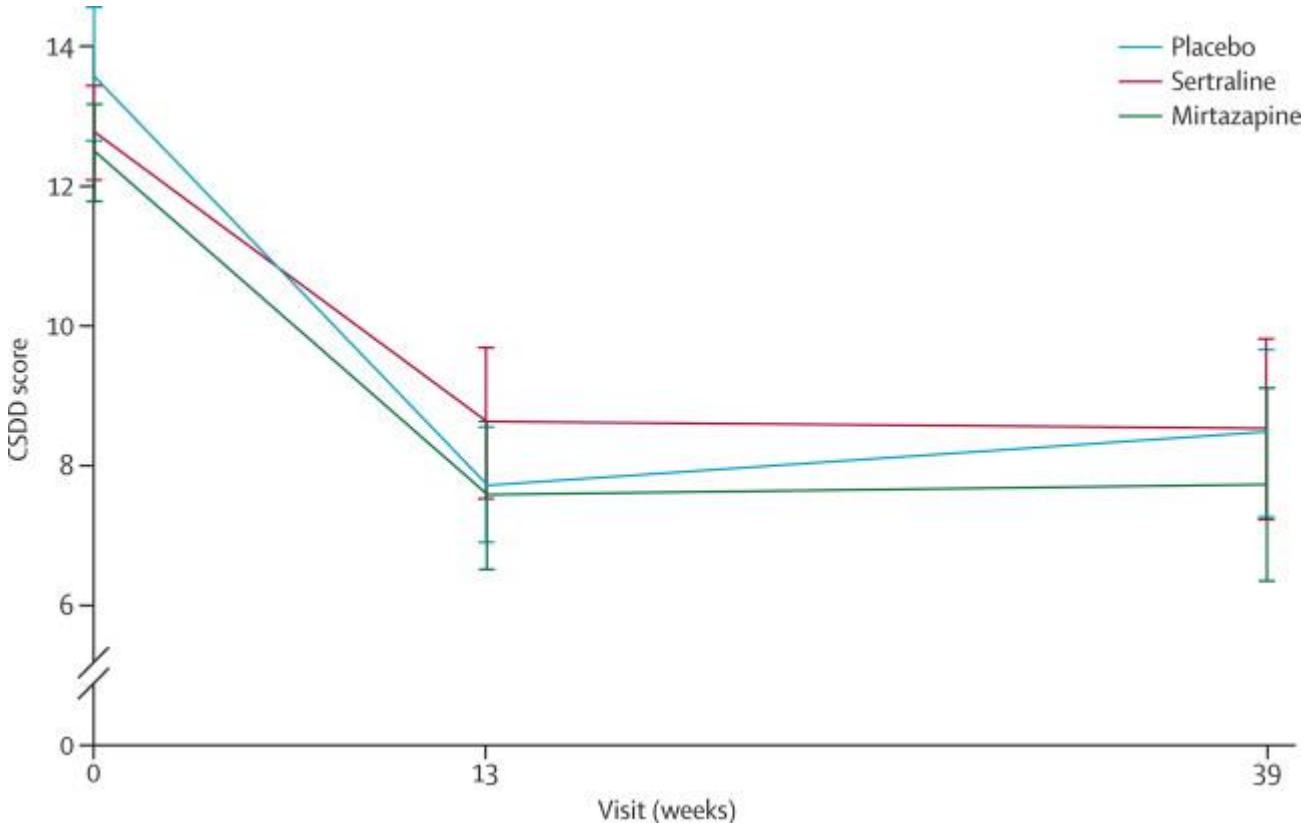


40% Improvement on Citalopram group vs 26% Pl

Porsteinsson et al. *JAMA*. 2014;311(7):682-691

HTA-SADD Trial
Banerjee S, Lancet 2011

- Sertraline or Mirtazapine for depression in dementia (HTA-SADD): a randomised, multicentre, double-blind, placebo-controlled
-



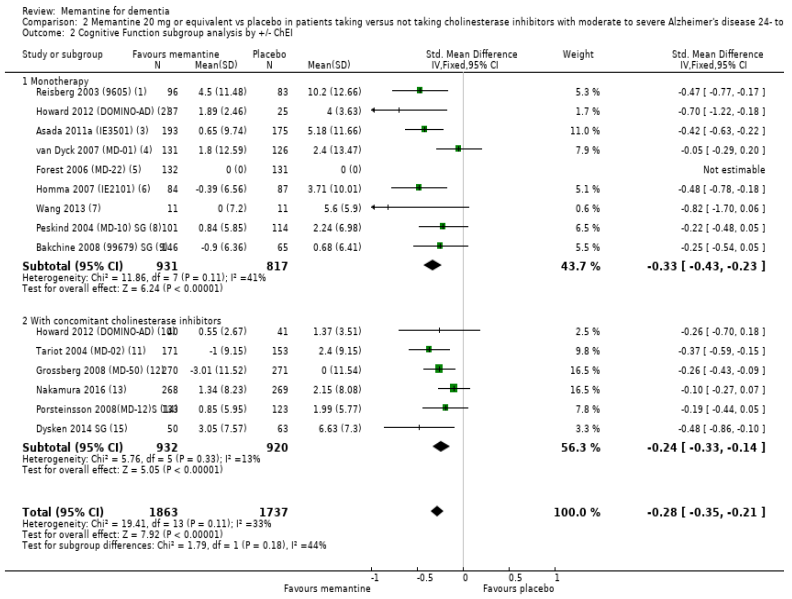
Memantine for dementia Cochrane Systematic Review - Intervention

Version: 20 March 2019

- There was increased efficacy of Memantine (versus placebo) with increasing severity of disease, but this occurred alongside deterioration in the placebo

for the mod-severe populations

- Clinical global rating
- Cognitive function
- Mood Behaviour



Mood Stabilisers

- Carbamazepine
- Lamotrigine
- Topiramate
- Valproate
- Atypical antipsychotics

Antiepileptic Drugs for the Treatment of Agitation and Aggression in Dementia: Do They Have a Place in Therapy?

D Gallagher, N Herrmann

Drugs (2014) 74:1747–1755 NICE 2019

- Antiepileptic drugs (AEDs) have been the focus of considerable attention as potential alternatives
- **Carbamazepine** continues to have the best evidence to support its use
- There is now more consistent evidence that **Valproate** preparations **should not** be used for agitation and aggression in dementia.
- There are limited data for several newer AEDs that warrant further investigation

Assessment of Reported Comparative Effectiveness and Safety of Atypical Antipsychotics in the Treatment of Behavioral and Psychological Symptoms of Dementia

A Network Meta-analysis Yusuna et al. 2019 JAMA

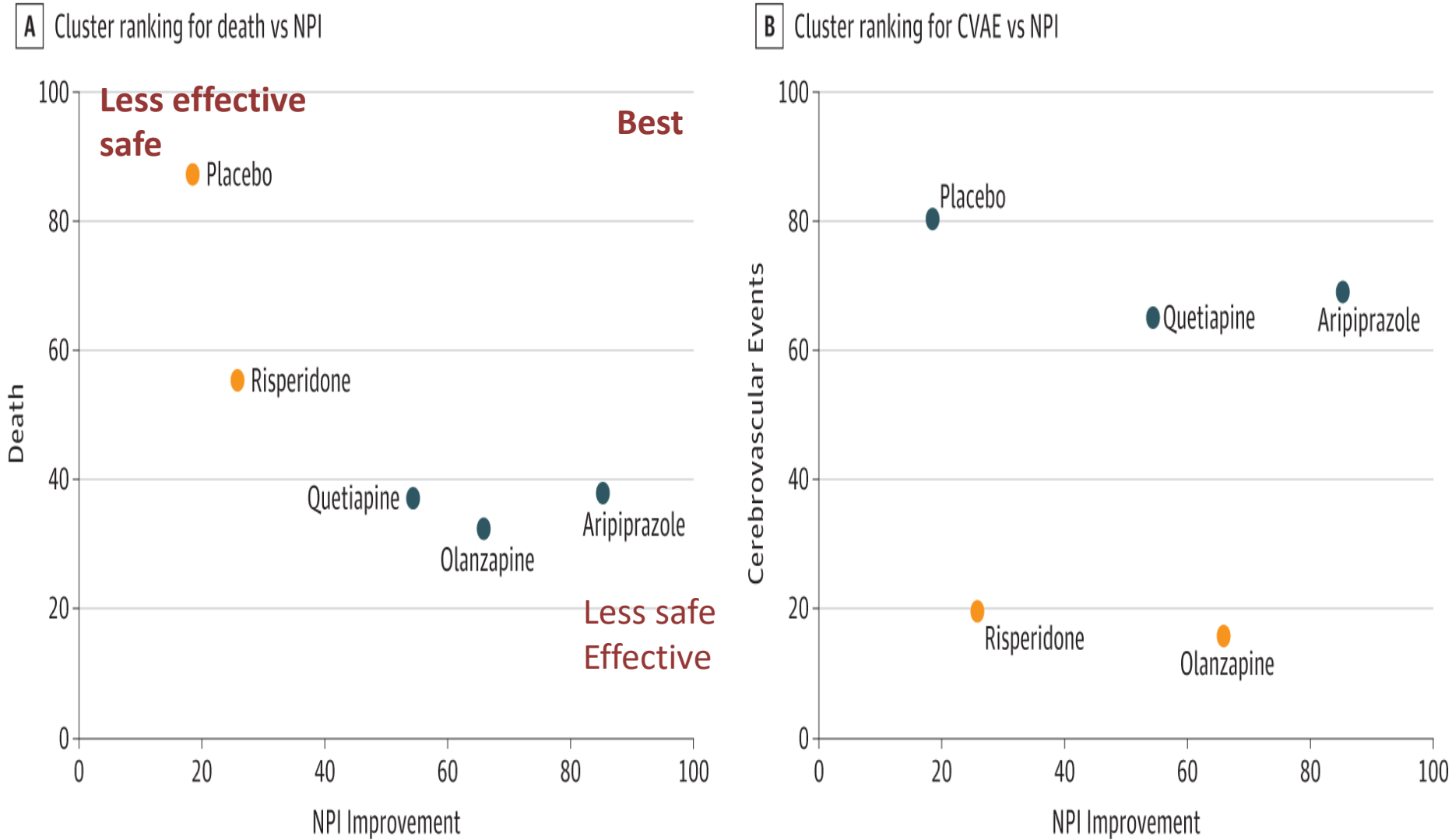
Meta-analysis of 17 randomized clinical trials nursing homes

- 5373 pts with AD and Agitation
- Mean age of 80.8 years, nearly 70% women mean duration of follow-up of 10 weeks.
- The medications: Aripiprazole, Olanzapine, Quetiapine and Risperidone

the most widely used atypical antipsychotics

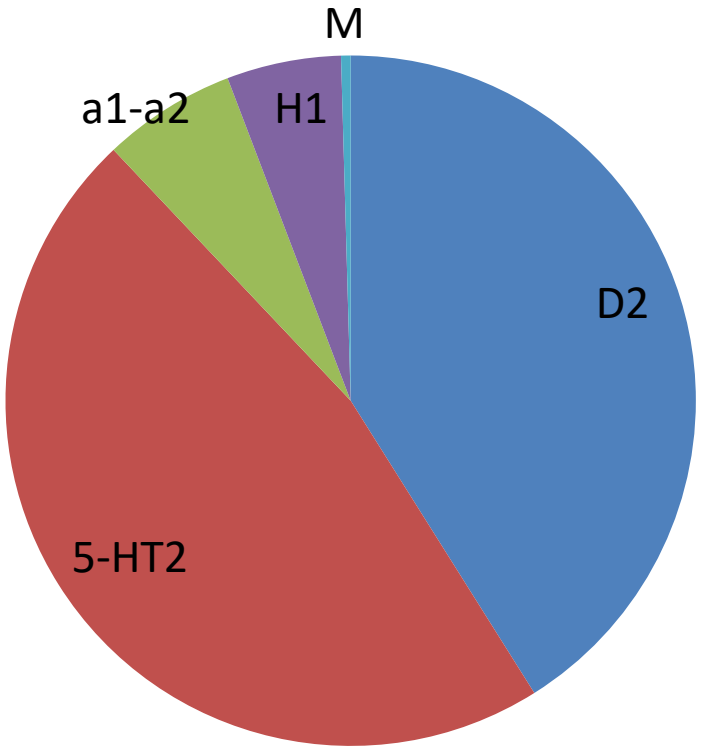
Cluster Ranking Plot for Relative Effectiveness and Safety

The upper right quadrant represents the more effective and more safe treatments; lower right quadrant, more effective but less safe lower left quadrant, less effective and less safe; and upper left quadrant, less effective and more safe.

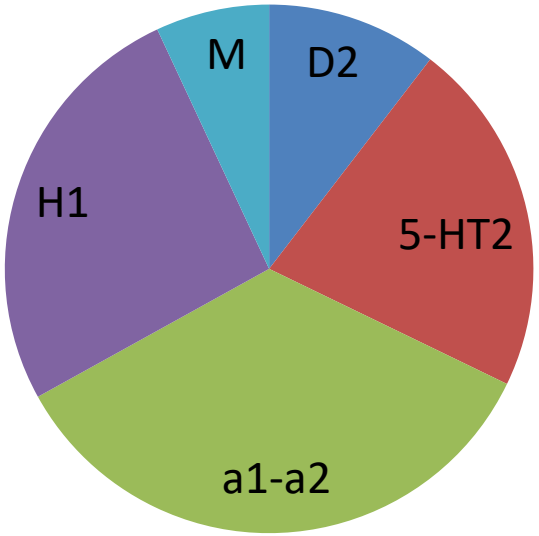


Reference	Intervention	Number of trials	Probability of stroke no antipsychotics	Probability of stroke with antipsychotics
Schneider et al 2006	Aripiprazole Olanzapine Quetiapine Risperidone	15	0.9%	**1.9%**
Dilip V Jeste et al 2007	Risperidone	3	0.7%	**1.6%**
Herman Lanctot 2005	Risperidone/ Olanzapine	11	0.8%	**2.2%**
Schneider et al 2005	Quetiapine	2	0.9%	**1.9%**

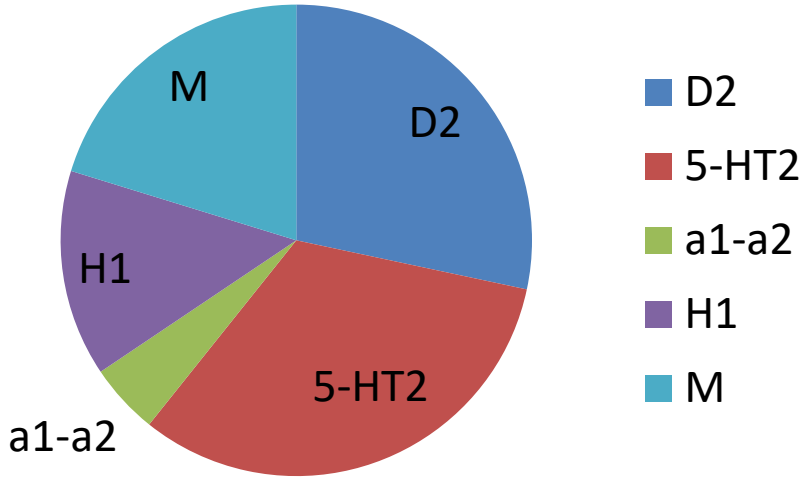
Risperidone 1993



Quetiapine 1997



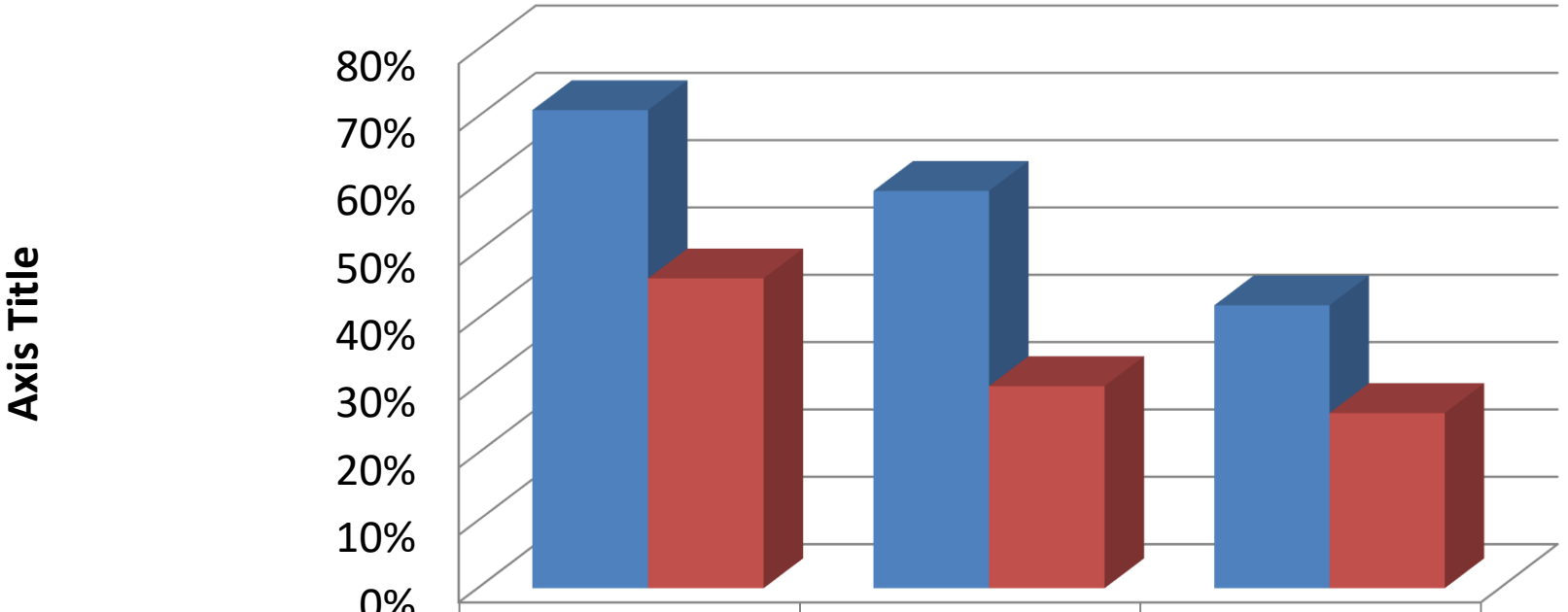
Olanzapine1996



D2

Cingulate cortex
Temporal cortex
Amygdala
Striatum
Hippocampus

DART-AD 2009 Ballard Lancet Neurology



	24 weeks	36 weeks	42 weeks
survival rate placebo	71%	59%	42%
survival rate antipsychotics	46%	30%	26%

Antipsychotics, Other Psychotropics, and the Risk of Death in Patients With Dementia
Number Needed to Harm

JAMA Psychiatry. 2015;72(5):438-445

- Haloperidol NNH 26
- Risperidone NNH 27
- Olanzapine NNH 40
- Quetiapine NNH 50

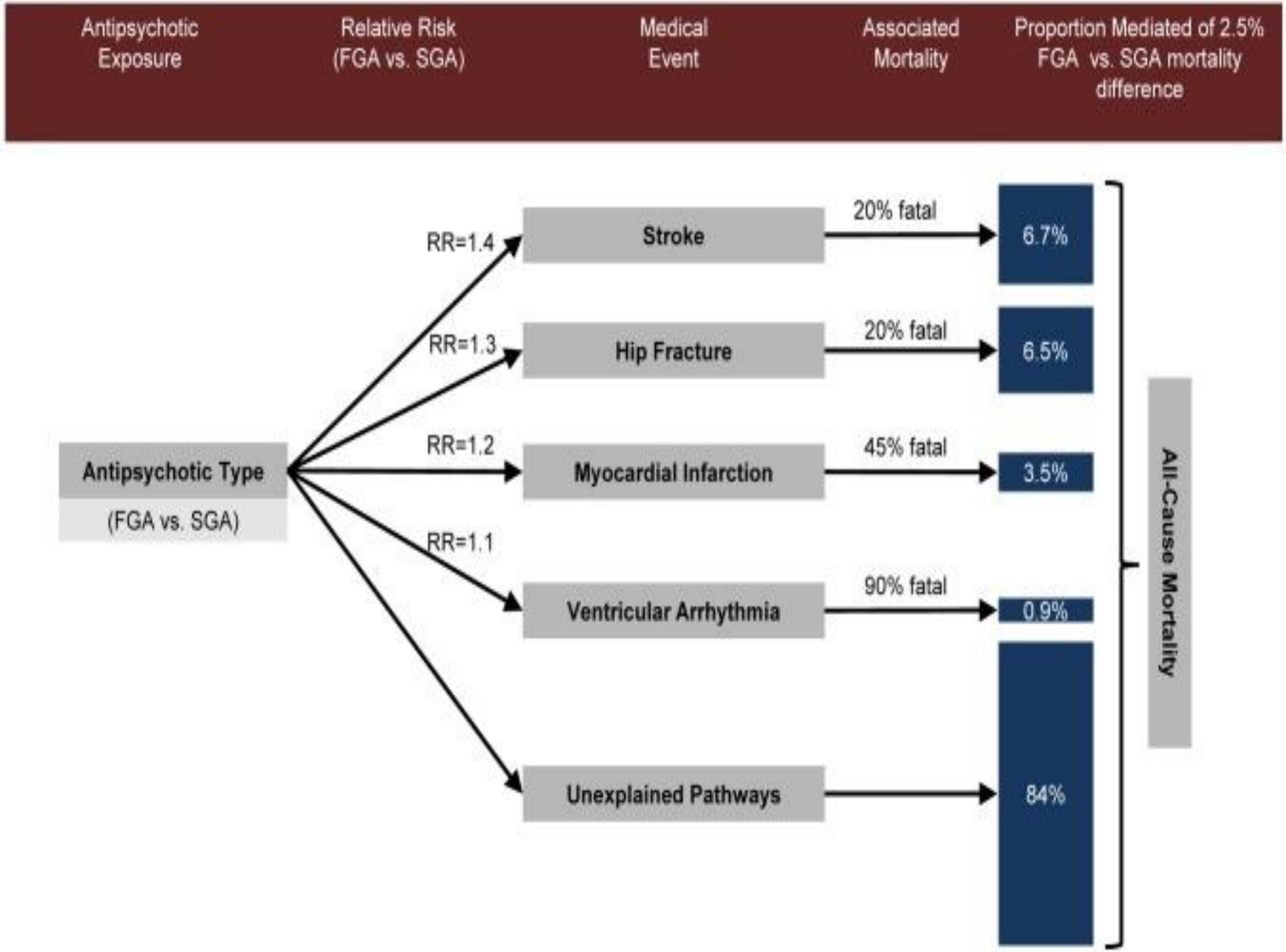

Antipsychotic Exposure
Relative Risk (FGA vs. SGA)
Medical Event
Associated Mortality
Proportion Mediated of 2.5% FGA vs. SGA mortality difference
Antipsychotic Type
(FGA vs. SGA)
RR=1.4
RR=1.3
RR=1.2
RR=1.1
Stroke
Hip Fracture
Myocardial Infarction
Ventricular Arrhythmia
Unexplained Pathways
20% fatal
20% fatal
45% fatal
90% fatal
6.7%
6.5%
3.5%
0.9%
84%
All-Cause Mortality

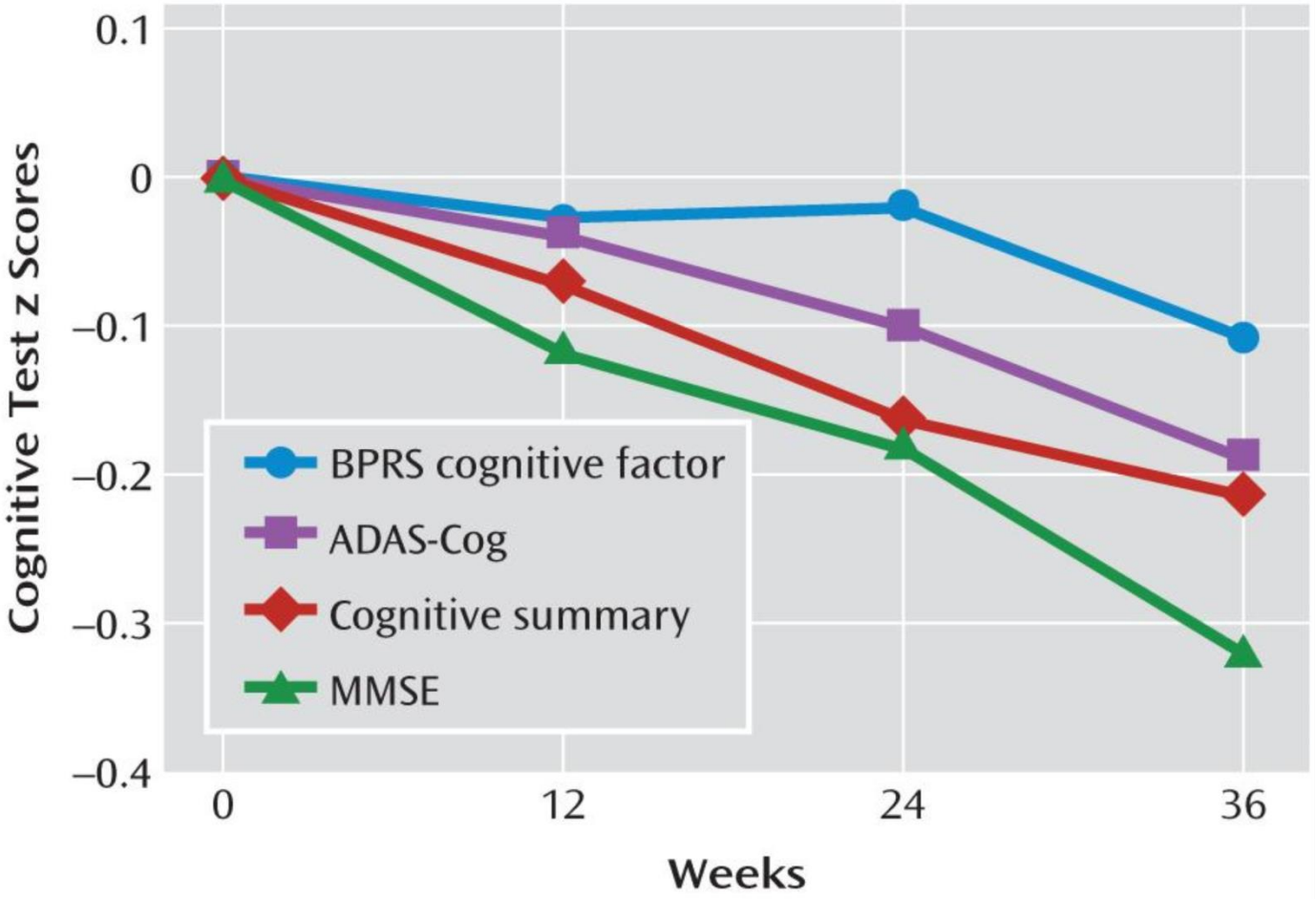
Table 3. Adjusted Mortality Risk Differences in Death Rates During the 180-Day Observation Period Between Medication Users and Antidepressant Users[a]

Medication	Risk Difference, % (95% CI)	NNH (95% CI)
Antidepressant	[Reference]	NA
Haloperidol	12.3 (8.6-16.0)[b]	8 (6-12)
Olanzapine	7.0 (4.2-9.8)[b]	14 (10-24)
Quetiapine	3.2 (1.6-4.9)[b]	31 (21-62)
Risperidone	6.1 (4.1-8.2)[b]	16 (12-25)
Valproic acid	5.1 (1.8-8.4)[b]	20 (12-56)

Abbreviations: NA, not applicable; NNH, number needed to harm.

[a] Analyses in the 46 008 patients adjusted for calendar year of first dementia diagnosis, days from dementia diagnosis to date of index drug start, centered

Cognition and Antipsychotics



From: Cognitive Effects of Atypical Antipsychotic Medications in Patients With Alzheimer's Disease: Outcomes From CATIE-AD

Am J Psychiatry. 2011;168(8):831-839. doi:10.1176/appi.ajp.2011.08121844

Side-effect profile Antipsychotics

Metabolic Syndrome
Clozapine
Olanzapine
Quetiapine
Risperidone

QT interval
Thioridazine
Quetiapine
Chlorpromazine
Haloperidol
Risperidone
Olanzapine

Hypotension
Quetiapine
Risperidone
Olanzapine
Amilsupride

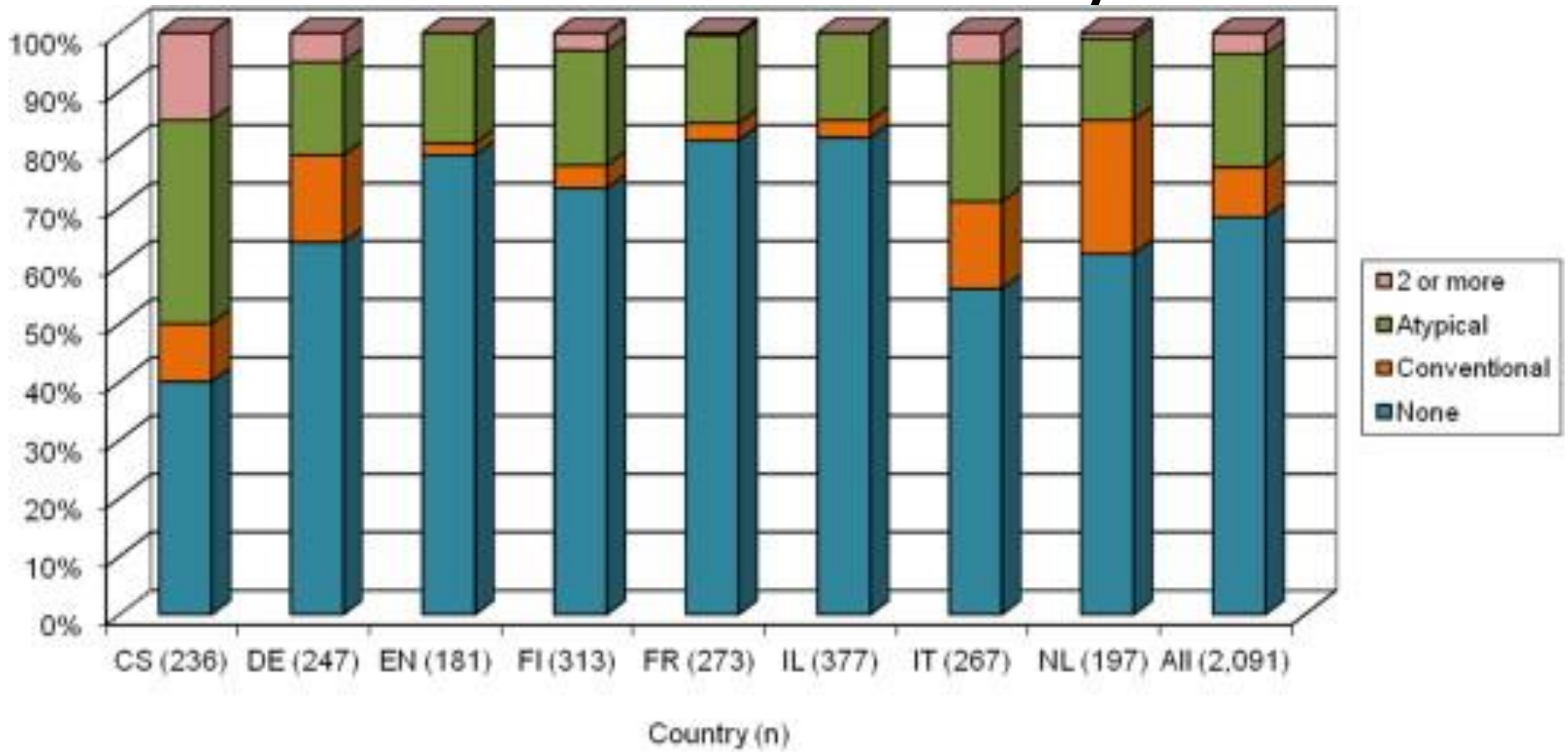
Seizures	Olanzapine	Quetiapine

Sedation
Amilsupride
Olanzapine
Risperidone
Quetiapine

Nausea Vomiting
Quetiapine
Risperidone
Amilsupride

	STEP	EFFICACY	TIME TO ONSET	TOLERABILITY	EASE OF USE	EFFICACY/ OTHER
RISPERIDONE	1					
QUETIAPINE	2					
ARIPIPRAZOLE	2					
CARBAMAZEPINE	3					
CITALOPRAM	4					
GABAPENTIN	5					
PRAZOSIN	6					

Use of Antipsychotic Drugs Among Residents With Dementia in European Long-Term Care Facilities: Results From the SHELTER Study



Best Standards
Prescribing anti Psychotics

- Document target symptom: Severe Aggression
- Prescription should be reviewed before D/C
- Plan to review soon after D/C
- Communicate/ consent with family
- Falls prevention/avoidance
- Underlying causes are considered before, Pain

Comfort Plan for Wellness and Recovery

- Aspects of a Comfort Plan

Comfort plans may be known by other names, such as ‘personal prevention plans’ or ‘safety plans’. Regardless of the title, they all contain a minimum of three similar components;

- 1. triggers to the persons anxiety or distress,
- 2. the behaviours a person might exhibit when they are anxious or distressed and
- 3. strategies they find calming or soothing.

Tele-consult

- Mrs Smith, Mark's wife:

- Interventions:
- Concerning symptoms:

A

D

Hy

Hy

HTN
DMII
Past IHD
TKR
Insomnia
Ex smoker
Retired
Plummer
Average
alcohol

- **What are we treating?**

  Who are we treating ?

PHARMACOLOGICAL INTERVENTIONS

- Time for Change?

- Stop
- Start
- Reduce

- Aspirin
- Metformin 1gr BD
- Gliclazide SR 90mg
- Atenolol 50 mg
- Perindopril 10 mg
- Simvastatin 40 mgs
- Endep 50 mgs
- Temazepam 20 mg nocte
- Panadol 1gr QDS

Hospitalisation?

- Wishes
- Risk / Safety
- Choices

Drugs?

- Support

Physical

Psychological

Differential:

Delirium?

Comfort Plan

1. History

In the past, have you experienced any of the following?

- ❑ Feeling unsafe
- ❑ History of trauma/traumatic events
- ❑ Feeling suicidal/suicide attempts
- ❑ Being in Prison
- ❑ Restraint or seclusion
- ❑ Self-Harming behaviours
- ❑ Aggressive behaviour
- ❑ Depression/ Sadness
- ❑ Anxiousness

Would you like to say more about these issues?_____

_____

2. My Triggers

In the past, what do you think has made you feel angry or upset?

- ❑ Not being listened too
- ❑ Feeling lonely
- ❑ Name calling
- ❑ People yelling at me
- ❑ Arguments
- ❑ Missing out on important events
- ❑ Feeling bored
- ❑ Bedroom door open
- ❑ Personal space invaded
- ❑ Particular smells
- ❑ Being tired
- ❑ Being physically unwell
- ❑ Feeling disrespected
- ❑ Not being able to smoke
- ❑ Being hungry/thirsty
- ❑ Being touched
- ❑ A particular time of day/night
- ❑ Hanging out for drugs
- ❑ Hearing voices or experiencing bad thoughts
- ❑ Feeling depressed
- ❑ Feeling intimidated
- ❑ People in uniform/staff
- ❑ Being told what to do
- ❑ Contact with particular people, if so who?

Would you like to say more about these triggers?_____

_____

3. Early Warning Signs

Do you find any of the following warning signs relevant to you?

- ❑ Changes in sleep (more/less)
- ❑ Clenching fists/teeth
- ❑ Yelling/Swearing
- ❑ Being Rude/Abusive
- ❑ Hurting myself
- ❑ Pacing
- ❑ Wanting to hit or throw objects
- ❑ Slamming doors
- ❑ Feeling irritable or angry
- ❑ Hearing voices/visual changes
- ❑ Talking to myself/the voices
- ❑ Changes in thinking/racing thoughts
- ❑ Worrying a lot/thinking too much
- ❑ Unable to sit still
- ❑ Heart racing/Dry mouth
- ❑ Withdrawing/isolating myself
- ❑ Not taking care of myself
- ❑ Changes in eating (more/less)
- ❑ Avoiding people

Would you like to say more about these signs?

4. Top 3 Coping Strategies

1. _____
2. _____
3. _____

5. Staff Preference

In the case when it is possible would you rather staff be

- ❑ Male
- ❑ Female
- ❑ No preference

COMFORT PLAN FOR WELLNESS AND RECOVERY

4. Coping Strategies

What are some of the things that calm you down or keep you safe?

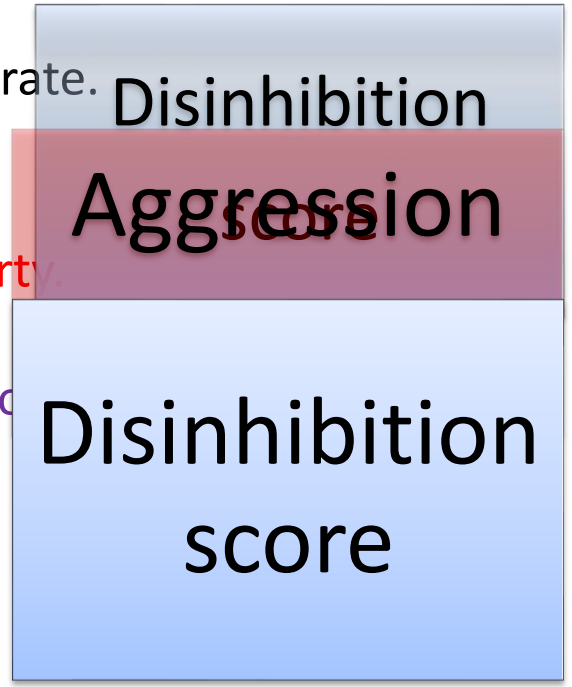
- ❑ Talk with consumers/staff
- ❑ Sitting quietly in a room/dark room
- ❑ Breathe deeply/relaxation exercises / CD
- ❑ Particular medication, if so what?
- ❑ Listening to music
- ❑ Watching TV / DVD
- ❑ Calling friends or family
- ❑ Games/Computer/Wii
- ❑ Playing board games/cards
- ❑ Being outside
- ❑ Playing a musical instrument
- ❑ Using rubber band on wrist
- ❑ Running cold/hot water on hands
- ❑ Singing
- ❑ Using/sitting on exercise ball
- ❑ Chewing gum/ Sour lollies
- ❑ Contact with family and friends
- ❑ Going for a walk
- ❑ Having a bath/shower
- ❑ Exercise/ballsports
- ❑ Artwork/craft activities
- ❑ Having food/drink
- ❑ Reading and or writing
- ❑ Using stress ball
- ❑ Shredding paper
- ❑ Wrapped in blanket/tucked in
- ❑ Using NRT options
- ❑ Guided relaxation
- ❑ Incense nice smells/hand lotion

Would you like to say more about these strategies?

_____

1 Short attention span, easy distractibility, inability to concentrate.
2 Impulsive, impatient, low tolerance for pain or frustration.
3 Uncooperative, resistant to care, demanding.
4 Violent and or threatening violence toward people or property.
5 Explosive and/or unpredictable anger.
6 Rocking, rubbing, moaning or other self-stimulating behavio
7 Pulling at tubes, restraints, etc.
8 Wandering from treatment areas.
9 Restlessness, pacing, excessive movement.
10 Repetitive behaviours, motor and/or verbal.
11 Rapid, loud or excessive talking.
12 Sudden changes of mood.
13 Easily initiated or excessive crying and/or laughter.
14 Self-abusiveness, physical and/or verbal.
Sub Totals

TOTAL



Lability score

In Summary

- Psycho-social interventions
- Pharmacological Interventions
- Communicate Risks and Benefits

Hypersexuality in Dementia

Geriatrics and Gerontology Int. v18n2Feb 2018

- Cyproterone acetate as a treatment for moderate-to-severe inappropriate sexual behavior in dementia by Min Ju Kang, Jeewon Suh, SangYun Kim 9pts AD 7 improved
- Review:Treatment of Inappropriate Sexual Behavior in Dementia R, 2016 De Giorgi,

Costs of drugs

- **Abilify Aripiprazole** 10mg Tablets 30

$77.99 PBS 40.00

- Rexulti Brexpiprazole 2 mg US$ 130
- **Quetiapine** 25mg

$9.50 PBS 6.20

- **Olanzapine** 5 mg

$ 9.5O PBS 6.20

- **Pimavanserin 34** mg US $ 126.00

RISPERIDONE
6.20
PBS

ALTERNATIVES
PARTIAL AGONISTS

ARIPIPRAZOLE 2002

Serotonin

Major Depression

Bipolar I II Mania

Dopamine

Partial Agonist D2

In combination for Schizophrenia

Aripiprazole for the Treatment of Psychosis in Patients With Alzheimer's Disease: A Randomized, Placebo-Controlled Study Journal of Clinical Psychopharmacology: Oct 2005.Vol25 - Is5 - p 463-467

Current studies on pharmacological treatment of agitation and psychosis in dementia with repositioned drugs available at: ClinicalTrials.gov

2020-2021

- Dextromethorphan/quinidine ongoing
- Brexpripazole OD 1-2-3 mg ongoing
- Prazosin BD 1-4 mg ongoing
- Mirtazapine SYMBAD 15-45 mg ongoing
- Lithium 150-450-600mg
- Escitalopram 5-15 target is 15 mg on going
- Nabilone on going

Randomized Placebo-Controlled Trial of Nabilone for Agitation in Alzheimer's Disease

Herrmann N American Journal of Geriatric Psychiatry, 2019, Vol 27, Is 11, Pg 1161-1173,

Nabilone was shown to improve agitation, overall behavior, and caregiver distress compared to placebo.

While sedation was greater in Nabilone treatment group, there were no between-group differences in treatment-limiting sedation

Efficacy and Safety of Brexpiprazole for the Treatment of Agitation in Alzheimer's Dementia Two 12-Week, Randomized, Double-Blind, Placebo-Controlled Trials

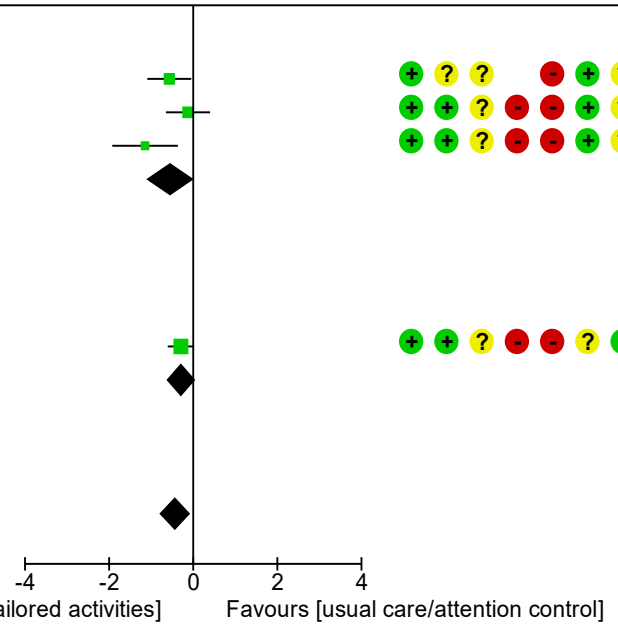
- In Study 1, brexpiprazole 2 mg/day demonstrated statistically significantly greater improvement in CMAI Total score from baseline to Week 12 than placebo (adjusted mean difference, −3.77; confidence limits, –7.38, –0.17; t (316) = –2.06; p = 0.040;
- In Study 2, brexpiprazole 0.5–2 mg/day did not achieve statistical superiority over placebo (–2.34; –5.49, 0.82; t (230) = −1.46; p = 0.15;

BREXPIPRAZOLE

- Partial agonist 5-HT1A D2 D3
- Antagonist 5-HT2A 2B 7 NA α_{1B} α_{2c}
- Moderate affinity H1
- Low sedation incidence < 3mg Weak M1
- Schizophrenia
- Major Depression
- Pharmacokinetics: CYP2D6 metabolites 8% Caucasian 3-8 Afro Americans
- Renal secretion < eGFR 30 half dose

Personally tailored activities for improving psychosocial outcomes for people with dementia in community aug2019

Study or Subgroup	Personally tailored activities Mean	SD	Total	Control Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
1.1.1 vs usual care								
Fitzsimmons 2002	1.64	0.35	29	1.88	0.47	30	24.0%	-0.57 [-1.09 , -0.05]
Gitlin 2008	7.2	4.1	27	7.7	3.7	29	23.8%	-0.13 [-0.65 , 0.40]
Novelli 2018	3.67	1.8	15	6.33	2.64	15	13.9%	-1.15 [-1.93 , -0.37]
Subtotal (95% CI)			**71**			**74**	**61.7%**	**-0.55 [-1.08 , -0.03]**
Heterogeneity: Tau² = 0.12; Chi² = 4.64, df = 2 (P = 0.10); I² = 57%								
Test for overall effect: Z = 2.06 (P = 0.04)								
1.1.2 vs attention control								
Gitlin 2018	4.1	2.2	76	4.8	2.5	84	38.3%	-0.29 [-0.61 , 0.02]
Subtotal (95% CI)			**76**			**84**	**38.3%**	**-0.29 [-0.61 , 0.02]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 1.85 (P = 0.06)								
Total (95% CI)			**147**			**158**	**100.0%**	**-0.44 [-0.77 , -0.10]**
Heterogeneity: Tau² = 0.05; Chi² = 5.38, df = 3 (P = 0.15); I² = 44%								
Test for overall effect: Z = 2.57 (P = 0.01)								
Test for subgroup differences: Chi² = 0.69, df = 1 (P = 0.41), I² = 0%								



Risk of bias legend

(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Blinding of outcome assessment (detection bias): Subjective outcomes (participant-rated)
(E) Blinding of outcome assessment (detection bias): Subjective outcomes (proxy-rated)
(F) Incomplete outcome data (attrition bias)
(G) Selective reporting (reporting bias)
(H) Other bias

Non Pharmacological

Caregivers

- Knowledge to understand dementia process
- Focus on remaining abilities of the person
- To engage with meaningful activities
- To maintain their wellbeing
- Resilience building up
- Burden of care
- Distress caused by any BPSD of the person

Relieve Distress

Resilience is where we experience adversity and find new ways of coping to reduce the negative impact on ourselves and our lives.

- **Meaning making**
- **A sense of mastery and control**
- **Connectedness to self and others**
- **Resources**
- **My actions**

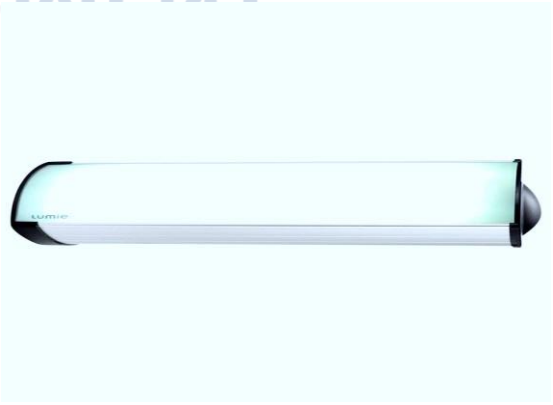
How to get to a person's world with dementia

- Interaction change

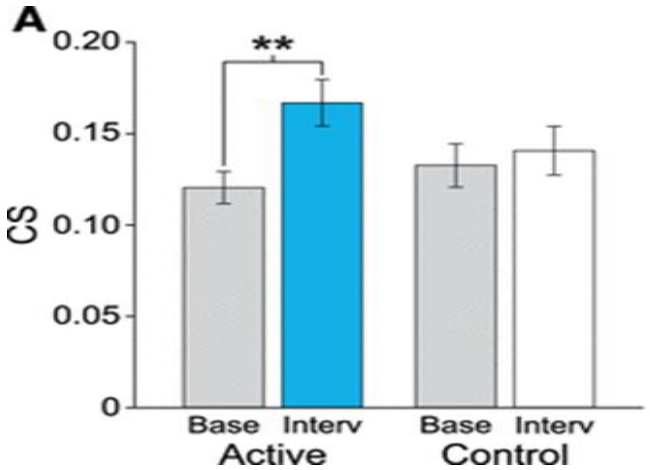
- Not to criticise
- To stay calm
- To change strategy to allow different activities

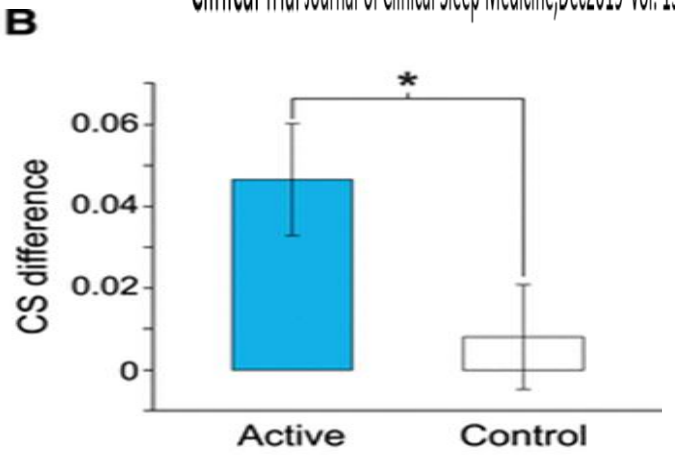
SUNDOWNING MANAGEMENT

- Light and Noise
- AChoI deficiency/sleep regulation
- Melatonin Ramelteon
- Antipsychotics no evidence
- Benzos might worsen symptoms
- Bright light therapy effective
- **Suvorexant**

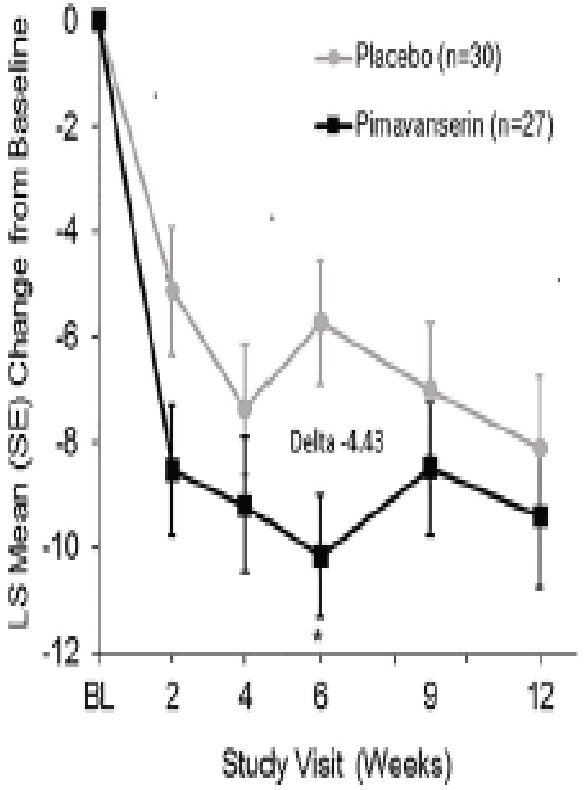


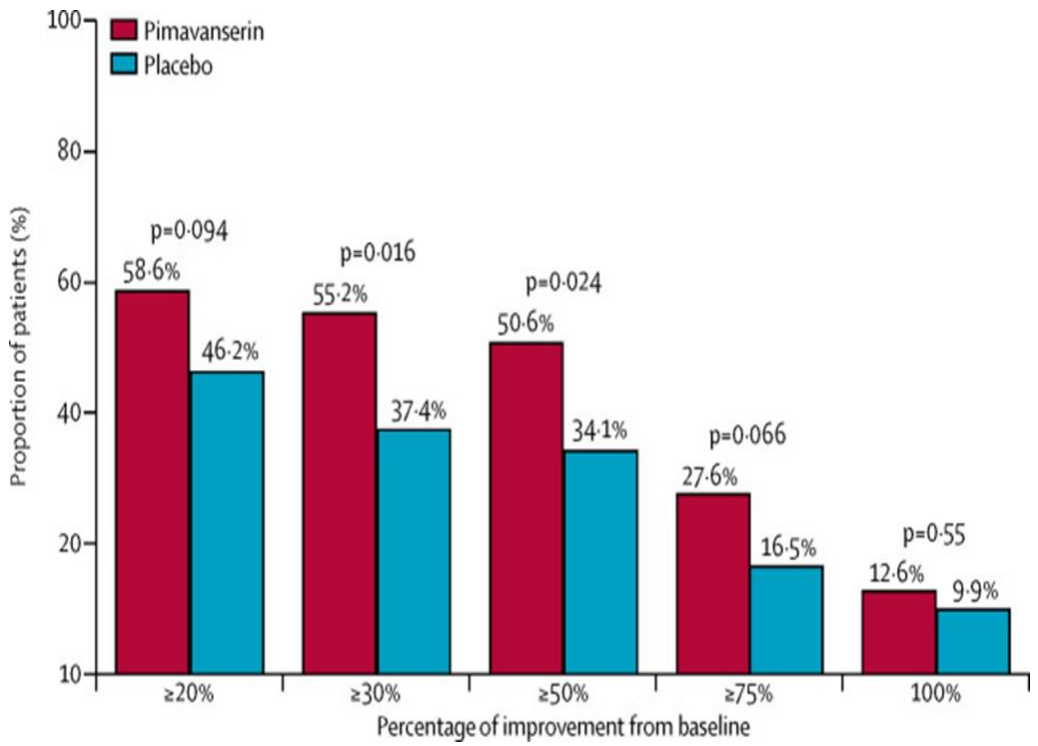
Effects of a Tailored Lighting Intervention on Sleep Quality, Rest–Activity, Mood, and Behavior in Older Adults With Alzheimer Disease and Related Dementias: A Randomized Clinical Trial Journal of Clinical Sleep Medicine,Dec2019 Vol. 15, No. 12





Pimavanserin, a Serotonin2A Receptor Inverse Agonist



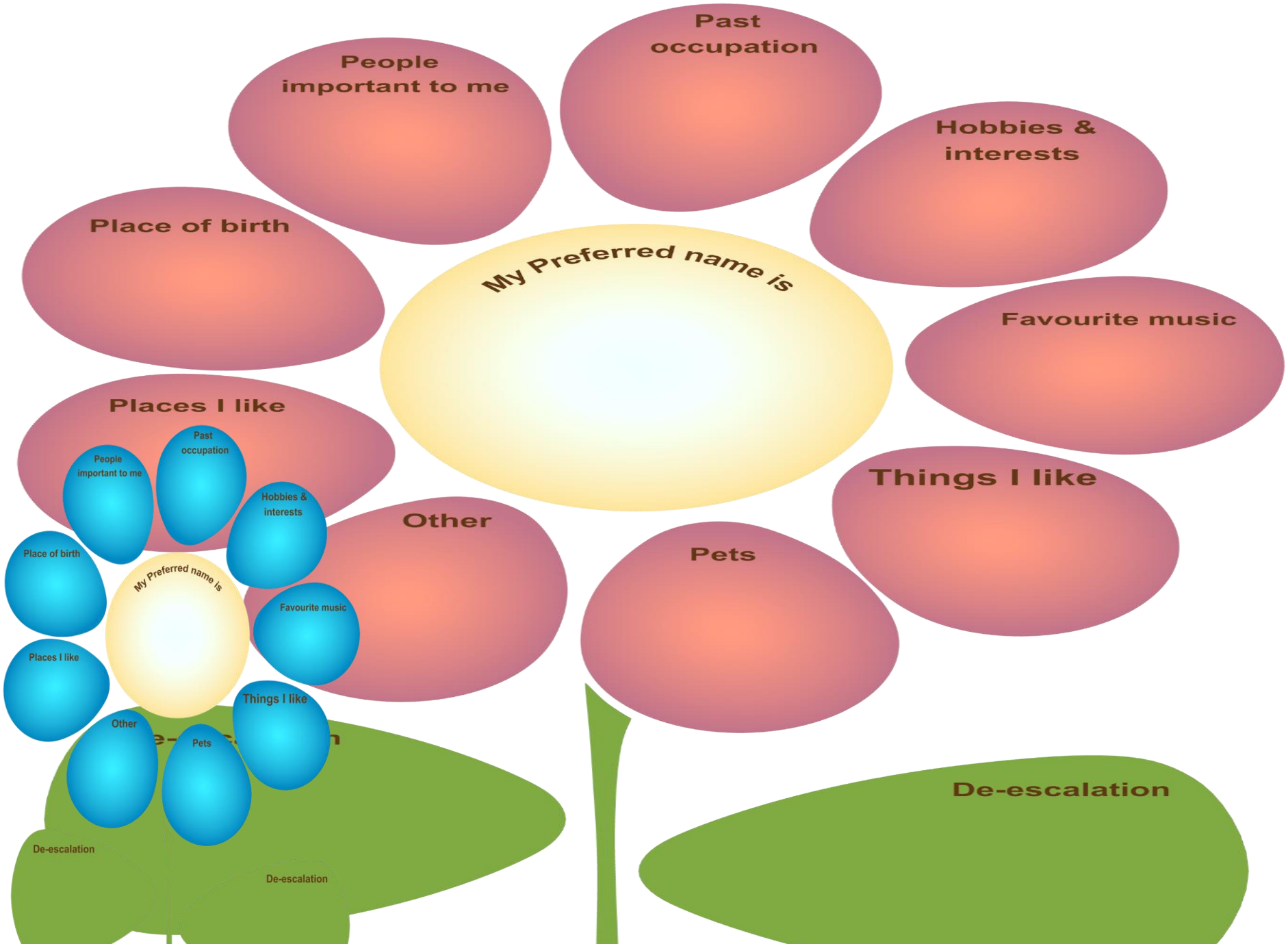


The HARMONY trial

Week six Pimavanserin group reduction of NPI-NH -10.15 VS -5.72 Placebo

Non Pharmacological interventions and tech

- Olfactory Tactile Visual stimulation
- To engage and benefit from these interventi ups
- Quiet settings
- Residents preferences abilities and backgrou


People important to me
Past occupation
Hobbies & interests
Place of birth
My Preferred name is
Favourite music
Places I like
Things I like
Other
Pets
De-escalation
De-escalation
De-escalation
People important to me
Past occupation
Hobbies & interests
Place of birth
My Preferred name is
Favourite music
Places I like
Things I like
Other
Pets

TACTILE WALLS

Structured supported daily activities

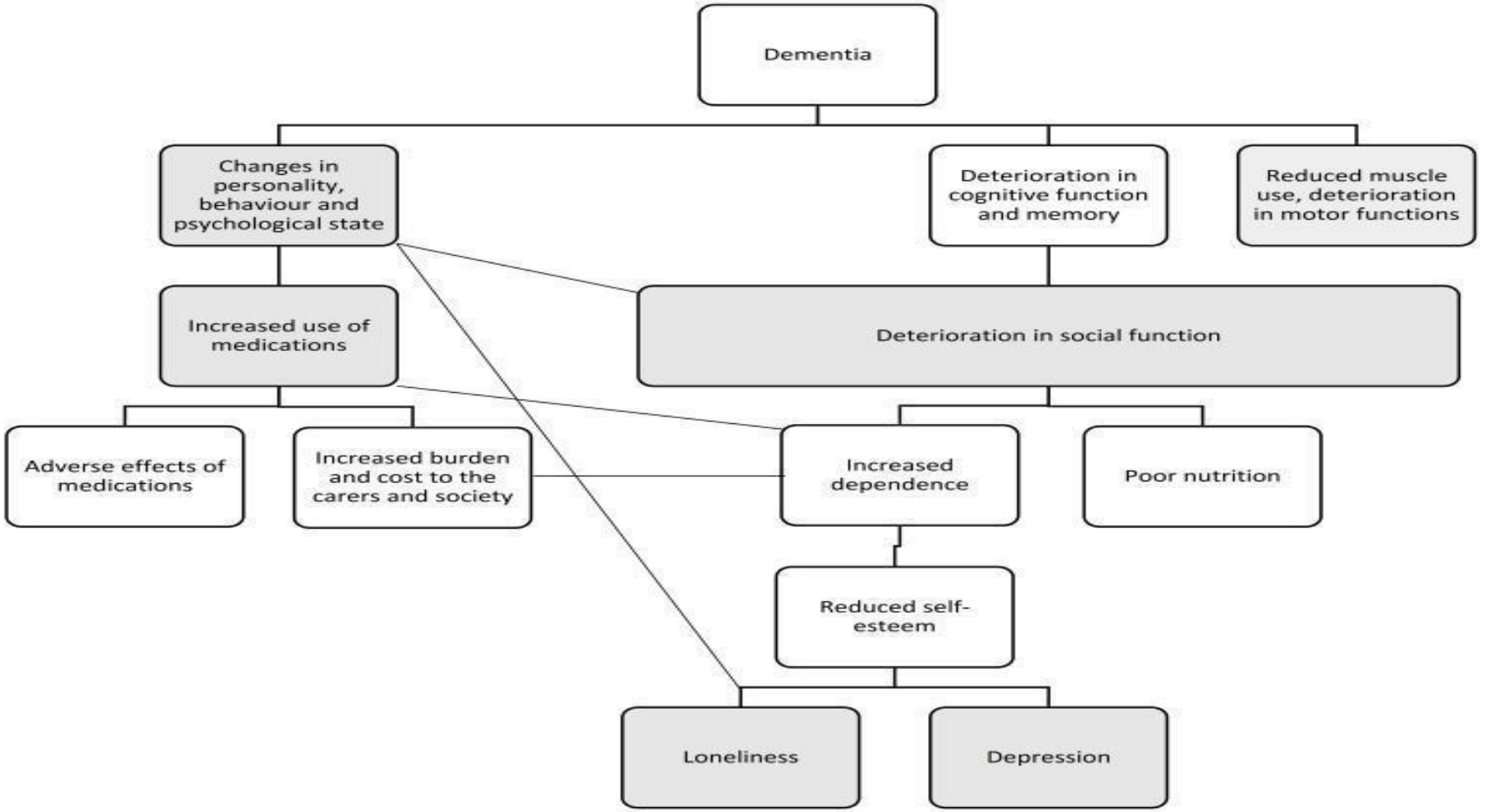
QWIRKLE

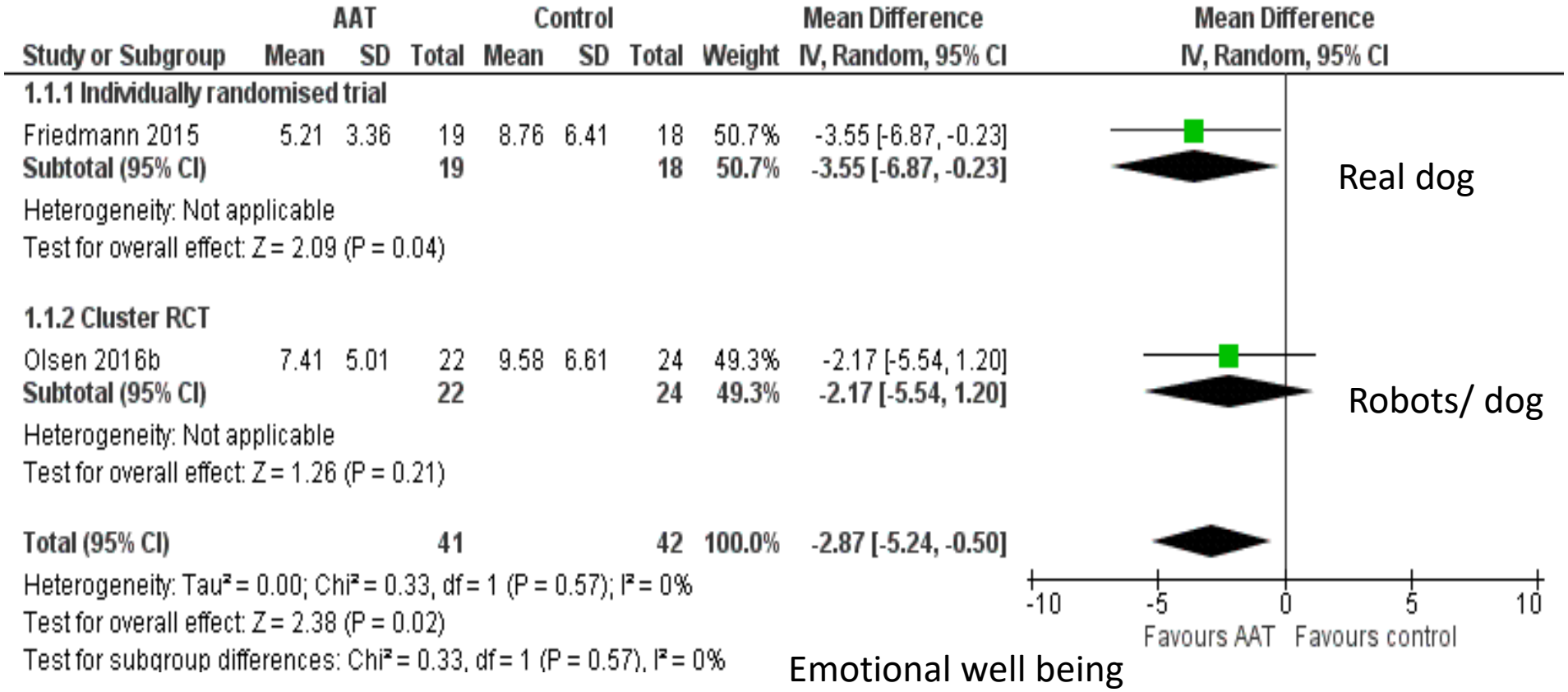
Tactile, simple motor activities animal representation

The sensory store

- Boxndice.com.au
- Ilcaustralia.org.au
- Wisdomactivities.com.au
- Diversionaltherapy.org.au
- Dementiashop.com.au

Animal-assisted therapy for dementia
Cochrane Systematic Review 25 Nov 2019





Emotional well being

Cochrane Library

"**Simulated family presence**", consisting of a professionally edited tape recording of a semi-structured interview of a family member, conducted by a trained psychologist, regarding participants' earlier lives. The script was designed to resemble a telephone conversation regarding special memories, beloved family members, and family episodes.

- We found low-certainty evidence that AAT may slightly reduce depressive symptoms in people with dementia.
- No side-effects

to the animals

- Robotic animals
- Soft toys cats
- 8 studies Real Dogs
- One study Horse

- No studies assessed outcomes on BPSD
- Companionship +pleasure+ relaxation +motivation

Effect of a robotic seal on the motor activity and sleep patterns of older people with dementia, as measured by wearable technology: A cluster randomised controlled trial 2016

w Moyle W. Jones C. Jenny Murfield Lukman Thalib Elizabeth BeattieDavid Shuma Siobhan O'Dwyera M. Cindy Mervina,h, Brian Draperi

After 10 weeks, the PARO group showed a greater reduction in daytime step count than usual care (p=0.023), and in night time step count (p=0.028) and daytime physical activity (p=0.026) compared with the plush toy group.
At post-intervention, The PARO group also had a greater reduction in night time physical activity than the usual-care group (p=0.015).

Conclusions: PARO may have some effect on motor activity of older people with dementia in long-term care

BRAIN GAMING EFFECTS ON MILD COGNITIVE IMPAIRMENT AND DEMENTIA:

A Collaborative Systematic Review and Meta-Analysis from the American Congress of Rehabilitation Medicine Applied Cognition Geriatric Taskforce (ACGTF):

Pallavi Sood, PhD, Sandra Kletzel, PhD, Ahmed Negm, MD, Shilpa Krishnan, PhD, Xiaolei Hu, MD, Patricia Heyn, PhD, FGSA, FACRM. Hannes Devos, PhD,

BACKGROUND

- Mild Cognitive Impairment (**MCI**) is a transitional state between cognitive changes due to normal aging process and dementia.
- There are ~ 35.6 million people with dementia in the USA; this number is expected to double every 20 years .
- Electronic brain gaming, a form of cognitive training, is typically developed or adapted from standard tasks and is engineered in such a way to provide fun cognitively challenging and adaptive tasks that are likely to enhance the user's engagement and motivation. Effectiveness of brain gaming is elusive among older adults with MCI or dementia.

REVIEW AIM

Systematically evaluate the literature on the effects of brain gaming interventions on cognitive outcomes in older adults with MCI or dementia

METHODS

This systematic review protocol is registered on PROSPERO (CCRD42015023918)

MESH and Main Key Words: computer/brain/ gaming/ electronic/ MCI/older adult/ dementia/cognitive function

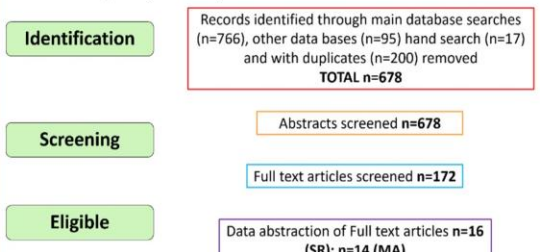
Main Databases: Medline (Ovid), PubMed (NLM), Embase (Embase.com), PsycINFO (Ovid) and Cochrane library (Wiley).

Inclusion Criteria

- older adults (≥65)
- Evidence of mild cognitive impairment or dementia of Alzheimer's (AD) type
- Brain gaming Tx
- Assess cognitive outcomes
- randomized controlled trials (RCT) or non-randomized multi-group design with an experimental (brain gaming) and comparator group.

Common reasons for **exclusion**: Review articles, healthy aging, not AD related cognitive impairment, cognitive training other than brain gaming.

PRISMA Chart: A priori protocol was developed in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA).



RESULTS

Table 1: Included Studies Characteristics

Exp: experimental; BG: brain gaming; NA: not applicable; NR: not reported in the eligible manuscript ^subgroup analyses from the primary ACTIVE study (Ball, 2002)

AUTHOR, YEAR	BRAIN GAMING PRODUCT	RCT	SAMPLE SIZE		MALE %	SAMPLE AGE mean (SD) *BG group only	CONTROL TYPE	SESSION		DURATION (wks)	TIME (hrs)	TREND (between group unless specified)
			Exp	Con				min	week			
Barnes, 2009	Posit Science	Y	22	25	60%	NR	Active	100	5	6	50	+
Basak, 2008	Rise of Nations	Y	19	20	26%	70 (5)*	Passive	90	1.5	4-5	23.5	+
Finn, 2011	Lumosity	Y	12	13	36%	69 (8)*	Passive	NR	30	11.43	10	+
Gooding, 2016	Posit Science Brain Fitness	Y	31	23	58%	76 (9)	Active	60	2	16	32	+
Hughes, 2014	Nintendo Wii	Y	10	10	30%	77 (6)	Active	90	1	24	36	Neutral
Hyer, 2016	Cogmed	Y	34	34	47%	75 (7)*	Active	40	5	5-7	16.6	+
Lin, 2016	Posit Science INSIGHT	Y	10	11	52%	73 (8)*	Active	60	4	6	24	+
Miller, 2013	Dakim's Brain Fitness	Y	38	36	32%	82 (4)*	Passive	20-25	5	8	16.6	+
Park, 2018	Nintendo Wii	Y	39	39	53.8%	67 (4.5)	Active	3	1	10	0.5	+
Styliadis, 2015	Posit Science Brain Fitness	Y	14	28	31%	71 (6)	Both	60	3-5	8	32	Neutral (w/in)
Savulich, 2017	Game Show	Y	21	21	60%	75 (7.4)	Passive	60	8	4	32	+
Valdes, 2012 ^	Posit Science Double Decision	Y	885	110	35%	78 (6)	Passive	60	2	5	10	+
Cavallo, 2016	Brainer1	Y	40	40	36%	77 (3)*	Active	30	3	12	18	+
Lee, 2013	In house	Y	7	6	23%	78 (6)	Active	30	2	6	6	Neutral
Man, 2011	In house	Y	20	14	15%	80 (1)*	NA	30	3-4	4-5	5	+
Galante, 2007	neuropsychological training	Y	7	5	NR	76 (6)	Active	60	3	4	12	Neutral

Table 2: Effect of brain gaming on overall cognitive functions in mild cognitive impairment and dementia.

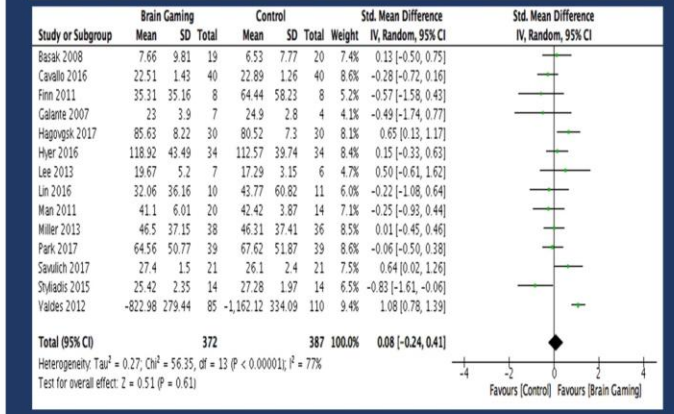
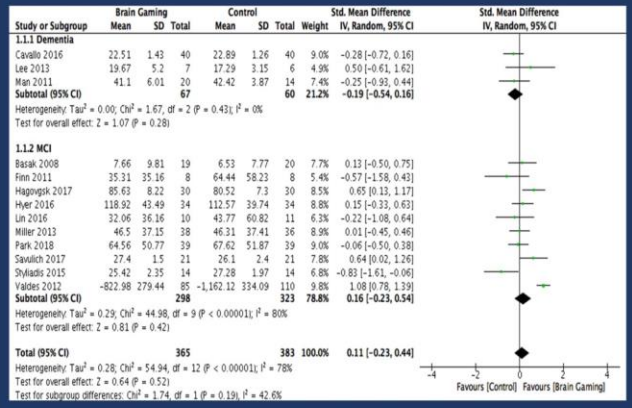


Table 3: Effect of brain gaming on overall cognitive functions in mild cognitive impairment and dementia subgroup analysis



CONCLUSION

- Current evidence shows brain gaming is not any more effective than control interventions in improving cognitive functions among adults with mild cognitive impairment (MCI) or dementia.
- However, there is a clear need for rigorous RCTs that are designed to detect clinically relevant changes in cognitive function outcomes
- Additional evaluation on different brain games technologies, prescriptions and participant adherence is needed in future research.

ADDITIONAL RESOURCES

Reference: Kletzel et al "Brain Gaming: A User's Product Guide for the Clinician." *Archives of Physical Medicine and Rehabilitation* 97(8), 2016: 1399-1400.

Sood et al., Nonimmersive Brain Gaming for Older Adults With Cognitive Impairment: A Scoping Review. The Gerontologist.

Tovertafel Original

TOVERTAFEL original

Interactive games for people with a cognitive impairment that connects people and stimulates movement

Relax in the here and now with dancing lights, beautiful colours and soothing sounds

2 Cognitive

2 Social

3 Physical

The game uses high-contrast projections

Projections are always spread across the table

Projected images naturally inspire movement or touch

The game gives sufficient reaction times

The game reacts to minimal and/or slow movements
Projections slow down as soon as they are within reach

The game only gives positive feedback

TOVERTAFEL

original

- www.alldoenunder.com
- www.justamemoryaustralia.com/our-story
- www.australianmade.com.au
- www.aso.gov.au/titles/ads
- www.australia.com
- www.imagesaustralia.com
- www.museumvictoria.com.au
- www.thesprucecrafts.com/free-printable-coloring-pages-for-adult
- www.rahs.org.au