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Using Tablet Devices for Management of Behavior Symptoms in Dementia

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- Dinner at Kensington Grill (fancy restaurant in San Diego) with friends and their hyperactive 4 year old
- iPhone used to keep him calm during dinner

Can an iPad be used to control the behavior of someone functioning at the level of a 4 year old i.e. severe dementia?

Tablets for Control of Behavioral Symptoms in Older Psychiatric Inpatients

- Conducted on UCSD Senior Behavioral Health Geriatric Psychiatry inpatient unit
- Patients with history of behavioral symptoms (agitation) that requires psychotropic medications (e.g. antipsychotics)
- All consented patients trained in iPad use by staff
- Menu of approximately 70 apps – all available commercially for free on App Store
- When patients become agitated, iPads given by research staff.
- Outcome Measure: Subjective reduction in behaviors

Vahia et al, Am J Geriatr Psych, 2016

Most Commonly Used Apps

- YouTube
- Safari/Chrome
- Pandora
- Amazing Dogs
- Google Maps/Google Earth

Rating App Complexity

Rating	Application
1 (least complex; requires passive attention)	Pandora
2	Doodle buddy
3	Amazing dogs
4	ESPN
5	Google search
6	Piano
7	Word search
8	Backgammon
9	Match puzzles
10 (most complex; involves higher order cognitive skills)	Sudoku

Tablet use among inpatients with dementia

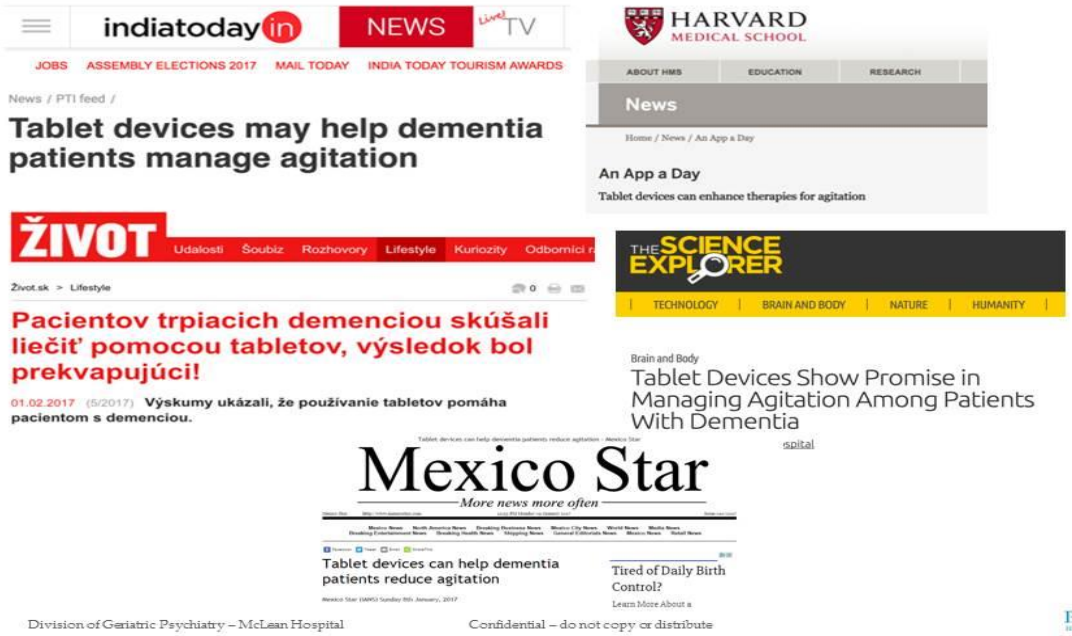
TABLE 1. Demographic and Psychiatric/Medical Characteristics of the Three Impairment Groups Based on MoCA Scores

	Total (N = 36)	Mildly Impaired (N = 13)	Moderately Impaired (N = 7)	Severely Impaired (N = 16)	F(df) or χ^2 (df)	p
Demographic characteristics						
Mean age, y (SD)	79.9 (8.2)	75.3 (8.3)	85.0 (6.1)	81.4 (7.4)	F(2,33) = 4.4	0.02
Mean education, y (SD)	13.3 (4.2)	13.2 (4.5)	13.0 (5.0)	13.6 (3.8)	F(2,30) = 0.05	0.95
Gender (% female)	61.1	92.3	85.7	25.0	$\chi^2(2) = 15.9$	<0.001
Prior tablet use experience, N (%)	17 (47)	7 (54)	2 (29)	8 (50)	$\chi^2(2) = 1.3$	0.53
Prior computer experience, N (%)	13 (36)	8 (61)	0 (0)	5 (31)	$\chi^2(2) = 7.8$	0.02
Psychiatric characteristics						
Frequency of comorbid depression-spectrum diagnosis, N (%)	23 (64)	12 (92)	6 (86)	5 (31)	$\chi^2(2) = 13.8$	<0.01
Frequency of psychotic symptoms, N (%)	25 (69)	6 (46)	4 (57)	15 (94)	$\chi^2(2) = 8.3$	0.02
Number of psychotropic medications (SD)	1.8 (1.4)	1.7 (1.3)	1.3 (1.1)	2.1 (1.5)	F(2,33) = 0.9	0.39
Medical characteristics						
Mean number of medical comorbidities (SD)	4.91 (2.4)	5.3 (2.9)	4.85 (1.6)	4.6 (2.2)	F(2,33) = 0.3	0.75
Mean number of nonpsychotropic medications (SD)	4.9 (2.5)	4.8 (1.3)	3.7 (1.2)	5.3 (3.5)	F(2,33) = 0.8	0.45
Tablet use characteristics						
Median number of instances of tablet use per subject (IQR)	3 (2, 5)	3 (2, 6)	2 (1, 3)	4 (3, 5)	F(2,33) = 1.0	0.37
Median number of unique apps used per subject (IQR)	2 (1, 3)	3 (1, 4.5)	3 (1, 3)	2 (1, 3)	F(2,33) = 1.2	0.54
Median complexity of apps (IQR)	2.8 (2, 6)	5.3 (2, 8.4)	3.0 (2.0, 8)	2.14 (1.6, 3.5)	F(2,32) = 3.0	0.06
Mean total amount of time using tablet, min (SD)	101.8 (220.8)	183.8 (350.8)	53.3 (59.0)	53.3 (38.0)	F(2,32) = 1.5	0.24
Mean minutes per instance of tablet use (SD)	18.3 (13.4)	24.0 (19.0)	19.2 (6.1)	13.0 (7.3)	F(2,32) = 2.51	0.09
Mean rating of magnitude of reduction in agitation (average across subject; SD)[a]	3.4	3.9	3.5	2.8	F(2,32) = 2.8	0.07

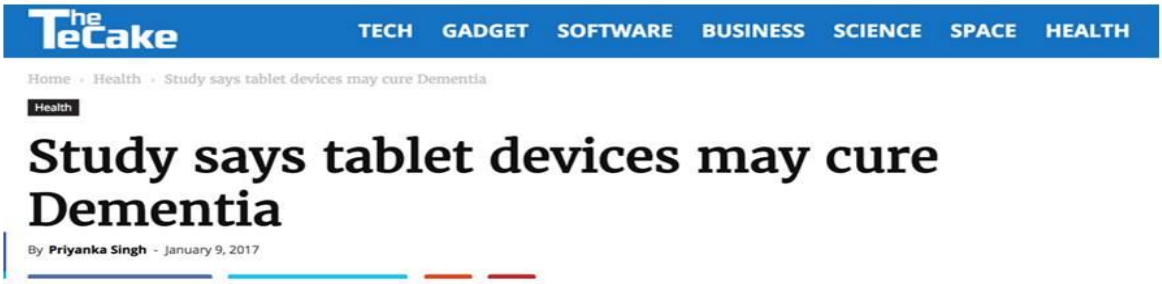
Tablet use among inpatients with dementia

	Mildly Impaired (N=13)	Moderately Impaired (N=7)	Severely Impaired (N=16)	P-value
Median Unique Apps/Subject (IQR)	3 (1, 5)	3 (1,3)	2 (1,3)	0.54
Median complexity of Apps (IQR)	5.3 (2,8.4)	3.0 (2,8)	2.14 (1.6, 3.5)	0.06
Mean total time using tablet (mins) (SD)	183.8 (350.8)	53.3 (59.0)	53.3 (38.0)	0.24
Mean minutes/instance of tablet use (SD)	24 (19.0)	19.2 (6.1)	13.0 (7.3)	0.09
Mean rating of magnitude of reduction in agitation (1(least) to 5(highest))	3.9	3.5	2.8	0.09

In the Media



Fake News!



"No one wants a drill. They just want the hole it makes"

- Theodore Levitt (most probably)

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