

Supplementary Data

Emotional Decoding Abilities in Alzheimer's Disease: A Meta-Analysis

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Supplementary Table 1
Characteristics of studies included in the meta-analysis

Authors	Sample	Task ^a	Stimuli	Modality	Emotions ^b	Control of cognitive status	Control of depression symptoms	Individual effect size ^c
Albert, Cohen & Koff [1]	AD = 19 HOA = 19	Discrimination	Face	Visual	H N Sa A	No		0.84* 0.75*
		Discrimination	Face	Visual	H N Sa A	Yes		0.7 0.36
		Naming	Face	Visual	H S N Sa D A F	No		1.45*
		Naming	Face	Visual	H S N Sa D A F	Yes		1.22*
		Selection	Face	Visual	H N Sa A	No		1.27* 1.42*
		Selection	Face	Visual	H N Sa A	Yes		0.77* 0.97*
Allender & Kaszniak [2]	AD = 13 HOA = 10	Naming + Discrimination	Prosody	Auditory	A Sa H N			2.01*
Bediou et al. [3]	AD = 10 HOA = 50	Naming	Face	Visual	D A H F			1.04*
		Naming	Face	Visual	D			0.92
		Naming	Face	Visual	A			0.72*
		Naming	Face	Visual	H			0.61
		Naming	Face	Visual	F			0.48
Bucks & Radford [4]	AD = 12 HOA = 12	Discrimination	Face	Visual	H Sa A F N			0.41
		Discrimination	Face	Visual	H Sa A F N	Yes		0.39 – 0.12
		Discrimination	Prosody	Auditory	H Sa A F N			1.09*
		Discrimination	Prosody	Auditory	H Sa A F N	Yes		0.96* – 0.27
		Matching	Face	Visual	H Sa A F N			0.6
		Matching	Face	Visual	H			0.6
		Matching	Face	Visual	Sa			0
		Matching	Face	Visual	A			0.6
		Matching	Face	Visual	F			0
		Matching	Face	Visual	N			0.31
		Matching	Face	Visual	H Sa A F N	Yes		0.56
		Matching	Face	Visual	H	Yes		0.61
		Matching	Face	Visual	Sa	Yes		–0.06
		Matching	Face	Visual	A	Yes		0.71†
		Matching	Face	Visual	F	Yes		–0.08
		Matching	Face	Visual	N	Yes		0.27
		Matching	Face	Visual	H Sa A F N	Yes		–0.28
		Matching	Prosody	Audio-visual	H Sa A F N			1.58*
		Matching	Prosody	Audio-visual	Sa			0.39
		Matching	Prosody	Audio-visual	A			0.45
		Matching	Prosody	Audio-visual	F			0.59
		Matching	Prosody	Audio-visual	N			0.42
		Matching	Prosody	Audio-visual	H Sa A F N	Yes		1.41*
		Matching	Prosody	Audio-visual	Sa	Yes		0.32
		Matching	Prosody	Audio-visual	A	Yes		0.56
		Matching	Prosody	Audio-visual	F	Yes		0.54
		Matching	Prosody	Audio-visual	N	Yes		0.27
		Matching	Prosody	Audio-visual	H Sa A F N	Yes		–0.1
		Naming	Face	Visual	H Sa A F N			0.38
		Naming	Face	Visual	H			0.59
		Naming	Face	Visual	Sa			0.55

Supplementary Table 1
(Continued)

Authors	Sample	Task ^a	Stimuli	Modality	Emotions ^b	Control of cognitive status	Control of depression symptoms	Individual effect size ^c
		Naming	Face	Visual	A			−0.43
		Naming	Face	Visual	F			0.2
		Naming	Face	Visual	N			0.08
		Naming	Face	Visual	H Sa A F N	Yes		0.34
		Naming	Face	Visual	H	Yes		0.58
		Naming	Face	Visual	Sa	Yes		0.48
		Naming	Face	Visual	A	Yes		−0.56
		Naming	Face	Visual	F	Yes		0.26
		Naming	Face	Visual	N	Yes		0.13
		Naming	Face	Visual	H Sa A F N	Yes		−0.68
		Naming	Prosody	Auditory	H Sa A F N			1.36*
		Naming	Prosody	Auditory	H			0.67
		Naming	Prosody	Auditory	Sa			0
		Naming	Prosody	Auditory	A			0.12
		Naming	Prosody	Auditory	F			0.59
		Naming	Prosody	Auditory	N			0.43
		Naming	Prosody	Auditory	H Sa A F N	Yes		1.4*
		Naming	Prosody	Auditory	H	Yes		0.61
		Naming	Prosody	Auditory	Sa	Yes		−0.03
		Naming	Prosody	Auditory	A	Yes		0.16
		Naming	Prosody	Auditory	F	Yes		0.73 [†]
		Naming	Prosody	Auditory	N	Yes		0.44
		Naming	Prosody	Auditory	H Sa A F N	Yes		0.28
		Selection	Face	Visual	H Sa A F N			1.1*
		Selection	Face	Visual	H			0.43
		Selection	Face	Visual	Sa			0
		Selection	Face	Visual	A			0.9*
		Selection	Face	Visual	F			0.53
		Selection	Face	Visual	N			−0.23
		Selection	Face	Visual	H Sa A F N	Yes		1.03*
		Selection	Face	Visual	H	Yes		0.33
		Selection	Face	Visual	Sa	Yes		0.05
		Selection	Face	Visual	A	Yes		0.84*
		Selection	Face	Visual	F	Yes		0.53
		Selection	Face	Visual	N	Yes		−0.26
		Selection	Face	Visual	H Sa A F N	Yes		0.4
		Discrimination	Face	Visual	H Sa A F N			1.01*
		+ Naming + Selection + Matching						
		Naming + Selection + Matching	Face	Visual	F			0.39
		Naming + Selection + Matching	Face	Visual	N			0.16
		Naming + Selection + Matching	Face	Visual	Sa			0.35
		Naming + Selection + Matching	Face	Visual	A			0.59
		Naming + Selection + Matching	Face	Visual	H			0.95*

Supplementary Table 1
(Continued)

Authors	Sample	Task ^a	Stimuli	Modality	Emotions ^b	Control of cognitive status	Control of depression symptoms	Individual effect size ^c
Burhnam & Hogervorst [5]	AD = 13 HOA = 13	Matching	Face	Visual	H			0.99*
		Matching	Face	Visual	F			0.92*
		Matching	Face	Visual	Sa			0.82*
Drapeau et al. [6]	AD = 7 HOA = 16	Naming	Face	Visual	H			1.28
		Naming	Face	Visual	Sa			4.36*
		Naming	Face	Visual	F			2.40*
		Naming	Face	Visual	A			2.45
		Naming	Face	Visual	S			1.86
		Naming	Face	Visual	D			5.65*
Drapeau [7] Unpublished data	AD = 6 HOA = 11	Naming	Prosody	Auditory	H			1.19 ^(?)
		Naming	Prosody	Auditory	Sa			0.89 ^(?)
		Naming	Prosody	Auditory	F			0.66 ^(?)
		Naming	Prosody	Auditory	A			-0.01 ^(?)
		Naming	Prosody	Auditory	S			-0.83 ^(?)
Fernandez-Duque & Black [8]	AD = 8 HOA = 10	Discrimination	Face	Visual	H S			0.16 ^(?)
		Discrimination	Face	Visual	Sa F A D			1.36 (?) 0.58 ^(?)
		Discrimination	Face	Visual	H F Sa D A S			-0.26 ^(?)
	AD = 9 HOA = 10	Naming	Face	Visual	H			0
		Naming	Face	Visual	N			-0.24
		Naming	Face	Visual	S			-0.62
		Naming	Face	Visual	Sa			0.33
		Naming	Face	Visual	D			0.24
		Naming	Face	Visual	F			-0.19
		Naming	Face	Visual	A			0.5
		Naming	Face	Visual	H S D Sa F A N			0
Granato et al. [9]	AD = 12 HOA = 12	Naming + Matching	Face	Visual	H A S Sa F D N			4.54*
Hargrave, Maddock & Stone [10]	AD = 22 HOA = 14	Discrimination	Face	Visual	H A S Sa F D	No		1.58*
		Discrimination	Face	Visual	H A S Sa F D	Yes		1.14*
		Matching	Face	Visual	H A S Sa F D	No		1.67*
		Matching	Face	Visual	H A S Sa F D	Yes		0.77*
		Naming	Face	Visual	H A S Sa F D	No		1.34*
		Naming	Face	Visual	H A S Sa F D	Yes		1.19*
Henry et al. [11]	AD = 24 HOA = 30	Naming	Face	Visual	F	Yes		0.76*
		Naming	Face	Visual	A	Yes		0.58*
		Naming	Face	Visual	H	Yes		0.54*
		Naming	Face	Visual	F	Yes		0.66
		Naming	Face	Visual	A	Yes		0.45
		Naming	Face	Visual	H	Yes		0.45
Horley et al. [12]	AD = 04 HOA = 20	Naming	Prosody	Auditory	A			0.06
		Naming	Prosody	Auditory	Sa			1.27*
		Naming	Prosody	Auditory	S			0.57
		Naming	Prosody	Auditory	H			0.68*

Supplementary Table 1
(Continued)

Authors	Sample	Task ^a	Stimuli	Modality	Emotions ^b	Control of cognitive status	Control of depression symptoms	Individual effect size ^c
Hot et al. Unpublished data [13]	AD = 14 HOA = 14	Naming	Face	Visual	A			0.30
		Naming	Face	Visual	H			-0.20
		Naming	Face	Visual	N			0.66 [†]
		Naming	Face	Visual	F			1.67*
Koff et al. [14]	AD = 23 HOA = 19	Matching	Cartoon drawing	Visual	H Sa A			0.90
		Matching	Cartoon drawing	Visual	Sa			0.83*
		Matching	Cartoon drawing	Visual	A			1.09*
		Matching	Prosody	Audio-visual	F H Sa			0.47*
		Naming	Prosody	Auditory	H Sa A N			0.61
		Naming	Videotape	Visual	H Sa A N			0.64* 0.94* 1.23*
		Naming	Videotape	Visual	H			0.81*
		Naming	Videotape	Visual	Sa			0.77*
Lavenu et al. [15]	AD = 20 HOA = 12	Discrimination	Face	Visual	A D F H Sa S C	Yes		0.74
		Discrimination	Face	Visual	A	Yes		0.50
		Discrimination	Face	Visual	D	Yes		0.63
		Discrimination	Face	Visual	F	Yes		0.60
		Discrimination	Face	Visual	H	Yes		0.04
		Discrimination	Face	Visual	Sa	Yes		0.57
		Discrimination	Face	Visual	S	Yes		0.40
		Discrimination	Face	Visual	C	Yes		0.78
		Naming	Face	Visual	A D F H Sa S C	Yes		0.84, 1.31*
		Naming	Face	Visual	A	Yes		-0.11 0.29
		Naming	Face	Visual	D	Yes		0.68 0.85
		Naming	Face	Visual	F	Yes		0.86* 1.41*
		Naming	Face	Visual	H	Yes		0.40 0.51
		Naming	Face	Visual	Sa	Yes		-0.06 0.54
		Naming	Face	Visual	S	Yes		0.07 0.16
		Naming	Face	Visual	C	Yes		0.96* 0.72
Ogrocki, Hills & Strauss [16]	AD = 17 HOA = 15	Naming	Face	Visual	H Sa A N			0.26
Phillips et al. [17]	AD = 27 HOA = 30	Discrimination	Face	Visual	S F A D Sa	No	Yes	0.86*
		Naming	Face	Visual	H Sa A F D S N	No	Yes	1.26*
		Naming	Face	Visual	H	No	Yes	0.18 0.81*
		Naming	Face	Visual	Sa	No	Yes	0.77* 0.95*
		Naming	Face	Visual	A	No	Yes	0.84* 1.25*
		Naming	Face	Visual	D	No	Yes	0.04 0.89*
		Naming	Face	Visual	S	No	Yes	0.71* 1.05*
		Naming	Face	Visual	F	No	Yes	0.81* 0.81*
Roberts et al. ^d [18]	AD = 20 HOA = 11	Elicitation	Prosody	Auditory	S A Sa			0.18 1.27*
		Naming	Prosody	Auditory	S A Sa			0.56 [†] 0.83*
		Repetition	Prosody	Auditory	S A Sa			0.40 1.28*
Roudier et al. [19]	AD = 31 HOA = 14	Discrimination	Face	Visual	H A Sa N	No		0.64 0.15
		Naming	Face	Visual	H A Sa N	No		1.21*
		Selection	Face	Visual	H A Sa N	No		0.91*
Shimokawa et al. [20]	AD = 25 HOA = 12	Matching+Selection	Cartoon drawing	Visual	A H Sa S	No		1.71*

Supplementary Table 1
(Continued)

Authors	Sample	Task ^a	Stimuli	Modality	Emotions ^b	Control of cognitive status	Control of depression symptoms	Individual effect size ^c
Spoletini et al. [21]	AD = 50 HOA = 50	Naming	Face	Visual	H Sa A F D N	No		1.39*
		Naming	Face	Visual	H	No		0.70*
		Naming	Face	Visual	Sa	No		0.83*
		Naming	Face	Visual	A	No		0.89*
		Naming	Face	Visual	F	No		0.86*
		Naming	Face	Visual	D	No		0.59*
Taler et al. [22]	AD = 10 HOA = 10	Naming	Face	Visual	N	No		0.67*
		Naming	Prosody	Auditory	A H Sa			0.48*
Werheid et al. [23]	AD = 18 HOA = 18	Naming	Face	Visual	H N A		No	1.12
		Naming	Face	Visual	H		No	0.12
		Naming	Face	Visual	N		No	0.38
		Naming	Face	Visual	A		No	0.67*
Zaitchik et al. [24]	AD = 20 HOA = 20	Naming	Audio-tape story	Auditory	Sa H			0.71 [†] 0.59

For a more convenient presentation, different effect sizes that share the same pattern of moderators within the same sample are presented together. As a consequence, one row (i.e., one pattern of moderators) can contain more than one effect size. HOA, Healthy Older Adults; AD, Alzheimer's disease patients; ^aWhen more than one task is indexed (e.g., Naming + Selection), it means that the effect size corresponds to the average performance obtained on the tasks; ^bH, Happiness; Sa, Sadness; S, Surprise; C, Contempt; N, Neutral; A, Anger; D, Disgust; F, Fear; ^cEffect sizes reported to be significant are indicated by an asterisk (*). Effect sizes reported to be marginally significant are labeled by this symbol.[†] The effect size where no indication was provided in the original reference about the significance is labeled by this symbol^(?). Reported results that were stated "non-significant" are not labeled; ^dRefers to a study where independent groups of AD patients were compared with a common group of HOA.

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