

Supplementary table 1.

AAI type and disease	Evidence type	Species and breed	Age	Experience	Attention-seeking behaviors	Specificity or sensitivity	Reference
DADs	Anecdotal	1 Labrador Retriever Dog	N/S	Trained	Sniff out	N/S	Lippi et al. (17)
DADs	Anecdotal	212 domestic dogs (70.2% pedigree and 29.8% mongrel)	<6 months (1.4%) -7 to12 months (7.1%) -1 to 5 years (46.7%) >5 years (44-8%)	No-trained	-Vocalizing -Licking -Nuzzling -Jumping on them -Staring into the face	65.1%	Wells et al. (90)
DADs	Empirical	6 dogs: -Labrador retriever (2) -Flat-coated retriever -Siberian husky mix -Spaniel mix -German Shepherd	-9 to18 months	~6 months of training for hypo alert	-Smelling -Touching -Sitting	-Sensitivity 50.0–87.5% -Specificity 50.0% to 89.6%.	Hardin et al. (84)

DADs	Empirical	27 dogs: -Golden x Labrador Retriever -Curly Coat x Labrador Retriever -Bichon Frise -Cocker Spaniels - Poodle -Poodle cross -Staffordshire -Bull Terrier -English Springer Spaniel -Yorkshire Terrier	N/S	Trained	-Nuzzling -Nudging -Pawing -Staring	-Mean sensitivity 70%	Rooney et al. (87)
DADs	Empirical	8 dogs: -Labradors -Labrador-Golden Retriever crosses -Miniature Poodle -Golden Retriever.	-12 to 72 months	Trained	-Fetch blood testing -Stare at owner -Nuzzle owner -Mouth owner -Paw owner	-Sensitivity to hypoglycemic (55.9%) and to hyperglycemic (36.5%)	Wilson et al. (86)

					-Lick owner -Jump up on the owner		
MDDs (melanoma)	Case report	-Male Labrador	2-year-old	No-trained	-Sniffing a 2-cm mass on its owner's leg	N/S	Moser et al. (94)
MDDs (Sarcoma, carcinoma, and melanoma)	Empirical	6 pet dogs: -mixed breed -Weimaraner -Beagles	~5.4 years	-Trained (completed 6 months of canine scent work training)	-Sit down in front of the samples (saliva)	-90% sensitivity -98% specificity	Malone et al. (93)
MDDs (cell lung cancer)	Empirical experimental	3 Beagle	2-year-old	Trained (over 8 weeks)	-Sitting in front of the samples (serum)	-Sensitivity 96.7% -Specificity of 97.5%	Junqueira et al. (97)
MDDs (lung cancer)	Empirical experimental	Golden Retriever	7-year-old	Trained (one year)	By pausing more than five seconds with its nose in the funnel of samples (urine and breath)	-Detection rate of urine samples (87.8%) and breath samples (78%)	Feil et al. (98)
MDDs (osteosarcoma)		2 Belgian Malinois dogs	1 and 7 years	Trained (16 months)	-Sit stare (cell culture medium and saliva)	- Sensitivities and specificities of 95%-100%	Ortal et al. (100)

SADs and SRDs	Anecdotal	160 pet dogs	N/S	Trained and untrained	-Licking the owner's hands and face - Staying close to the owner -Sitting -Touching - Vocalizing (barking, growling, whining) -Jumping	-Detection rate trained dogs (63%) 30–60 min before its onset -Detection rate of no-trained dogs (36%) 0–10 min before the onset	Martinez-Caja et al. (108)
SADs	Experimental	5 neutered dogs: Golden/Labrador retriever mix -Border collie mix - Chesapeake bay retriever mix - Dachshund - Australian shepherd mix	-From 2 to 5 years	Trained	-Dog standing above the scent (sweaty hands, forehead, and back of the neck)	- Sensitivity ranging from 67–100% -Specificity between 95–100%	Catala et al. (113)

SADs and SRDs	Experimental	13 dogs: -Golden -Golden Doodle -Labrador	N/S	Trained	- Touching of the trainer's LEFT hand (underarm sweat samples)	-Detection rate of 93.7% of ictal and interictal sweat samples	Maa et al. (81)
SRDs	Anecdotal	22 pet dogs: - Labrador retrievers -Standard poodle - Border terrier -Toy poodle -Cocker spaniel	~4.8 years	Trained (4 weeks)	Barking/whining -Licking -Close physical contact	Spontaneous alerting behavior developed in 59%	Kirton et al. (111)
SADs	Anecdotal	72 dogs: -Golden Retriever -Labrador Retriever -English Cocker Spaniel -Cavalier King Charles Spaniel -Boxer -Chihuahua	From <2 months to >1 year	Trained and untrained	-Staying very close -Staring -Whining -Pacing around -Going to another person -Licking their face or hand	N/S	Catala et al. (114)

		-Yorkshire Terrier -Beauceron -Border Collie -Australian Shepherd -German Shepherd -Bernese Mountain Dog					
SADs	Experimental	19 pet dogs (68.40% pedigree and 31.60% mixed breeds)	From 6 to 185 months	-untrained	- Maintained eye contact with the owner -Pawing -Nudging - Stay near the owner	N/S	Powel et al. (112)
SRDs and SADs	Anecdotal	22 pet dogs: -Golden Retriever -Standard Poodle -German Shepherd -Akita -Rough Collie	N/S	-Trained and untrained	- Licking - Decreased motor activity - “protective” behavior without aggression - Whimpering	Median accuracy of 80%	Kirton et al. (18)

		-Rottweiler -Terrier -Great Pyrenees -Mixed breeds					
SADs	Case reports	2 pet dogs and one horse	N/S	Trained	-Sitting -Barking - Kicked in the head by the horse - Standing up -Staring	N/S	Ortiz and Liporace (115)
SADs	Case reports	-Labrador retrievers -Jack Russell -Border collie -Miniature schnauzer -Collie	From 8-month-old to 5-year-old	Trained (6 months)	-Bark -Jump up -Pawing	N/S	Strong et al. (82)

Supplementary table 1. Abbreviations: (N/S) Not Specified; (DADs) Diabetic-Alert-Dogs; (MDD) Medical Detection Dogs; (SAD) Seizure-Alert Dogs; (SRD) Seizure-Response Dogs.

Supplementary table 2.

Patient data (disease, age, sex)	Animal data (species, breed, age)	Activities	Time o period	Parameters	Outcomes	Reference
Pediatric heart transplant patients (aged 6–19 years).	NA	Walking, petting, and grooming	One week with therapy sessions averaging 17.2 min	-Blood pressure -Respiratory rate -Ambulation data	↓ Systolic and diastolic blood pressure ↑ Walked	Walden et al. (127)
Children with a diagnosis of a solid tumor or acute lymphoid leukemia (6 – 12 years)	Retriever and a golden retriever dog	- Brush, pet, and play fetch with the dog - Give water and food to the food -Walking with the dog -Dog show; playing with the dog's supplies; dog drawing	Three sessions of 30 min	-Blood pressure -ESI -AUQEI -Child Depression Inventory -BRUMS -Faces Pain Scale -AAT Assessment Questionnaire	↓ Blood pressure ↓ ESI ↓ BRUMS ↓Faces Pain Scale	Silva and Osório (20)

Adult oncological patients (~64.5 years)	Two trained dogs: 8-year-old male border collie 9-year-old female Shetland sheepdog	-Observed a dog doing some exercises -Play with a dog -Hold a dog and/or feed it	-During weekly chemotherapy sessions (out once a week)	-Anxiety -Depression -Somatic Symptoms -Hostility test -HR -Blood pressure -Arterial oxygen	↓Anxiety levels ↓Aggressiveness ↓HR ↑Arterial oxygen	Orlandi et al. (4)
Male patient hospitalized with colon cancer, lumbar abscess, and diabetes mellitus (79-year-old)	N/S	- Interact with the patient	-Four sessions (15 minute-visit by the dog/handler in each session)	-Facial expressions -Verbal communication -Eye contact	↑ Verbal communication	Aiba et al. (144)
24 patients with chronic schizophrenia (~age of 47.8 years)	5 trained dogs	- Handling the dog -Walking -Training -Playing with the animals	- Six months (twice weekly for 1 hour)	-PANSS -QoL -EQ-5D -Cortisol - sAA	↓PANSS ↓Cortisol ↑sAA	Calvo et al. (146)
40 middle-aged and older adults	4 dogs (5-11 years old):	-Physical (handling,	12-week (1 h weekly)	-MoCA -CST	↓CST ↓ACIS	Chen et al. (151)

	-Labrador -Corgi -Maltese -Shiba Inu	feeding, grooming) -Cognitive (training and orienting the dog) -Social (talking to the dog) -Sensory (touching, playing) activities		-TUG -5MWT -ACIS		
10 elderly schizophrenic patients (mean age 79.1 years)	N/S	-Petting -Feeding -Grooming -Bathing them	12 months (Weekly 4-hour sessions)	-SAFE -ADLs	↓ SAFE ↑ ADLs	Barak et al. (152)
Older adults (~65 years old) with and without depression	-Dogs -Cats -Birds	-Stroking the animal -Playing with the animal -Throwing and retrieving balls	10-90 minutes three times per week (6 weeks to 8 months)	-GDS -CSDD	↓GDS	Villareal-Zegarra et al. (23)

		-Playing with the animal and even coexistence between the two				
58 patients diagnosed with depression (~60–70 years old)	-Trained dogs	-Dog handler	2–3 h per day over a 3-week period	-BDI-9 -STAI -WBI -IIRS -VAS -QoL	↓BDI-9 ↑STAI ↑WBI ↓IIRS ↓VAS ↑QoL	Mittly et al. (158)
15 adolescents with attention-deficit hyperactivity disorder and severe depressive symptoms	-Horses	-Caring it -Feeding it -Brushing it -Therapeutic riding	Two 60-minute sessions over seven days	-Functional brain connectivity -CDI	↑Brain functional connectivity (left and right amygdala) ↓CDI	Kang et al. (160)
80 Children (aged 5-17 years) with suspected moderate to high anxiety	Dogs trained	-Handler	10 minutes	-FACES -Salivary cortisol	↓FACES	Kelker et al. (25)

83 patients (<40 to >60 years old)	Dogs	-Freely able to touch	15 minutes	-FACES Anxiety -Pain -Depression	↓FACES Anxiety ↓Pain ↓Depression	Kline et al. (26)
60 children (6–17 years) with depression	Horses	-Riding	10 sessions of one-hour adaptive riding sessions	-SCARED -ERC -SEQ-C	↓SCARED ↓ERC ↓SEQ-C	Hoagwood et al. (166)
249 university students (~19.94 years old) with depression	-16 adults pet dogs -14 cats	- Students freely interacted with animals, engaging in petting and stroking.	10-minute animal visitation	-Salivary cortisol	↓ Cortisol levels	Pendry et al. (7)
21 dementia patients with a mean age of 84.7 years	-Three Golden Retrievers and a Pincher	-Hold, stroke, walk, talk, and play with four dogs	90 minutes once a week for six weeks	-MMSE -GDS	↑MMSE ↓GDS	Moretti et al. (178)
50 Alzheimer's patients (~75 years old)	A 7-year-old female Labrador retriever	Interaction with the dog (attention: fetch, hide the ball, caring for the dog)	Once a week for 45 min over 6 months	-MMSE -GDS	↓MMSE ↓GDS	Menna et al. (6)

Institutionalized patients 65 years of age and older	8 trained dogs: -Golden retrievers -Flat-coated retriever	-Verbal interaction with the dog -petting or stroking the dog -Throwing the dog a bit of food or a toy -Tapping, touching, or carrying out an act directed at the dog handler	10 weeks, patients participated in individual 30-min sessions	-GDS -MMSE -GAD-7 -PANAS -IPQ-R -NPRS	↓GDS ↓NPRS	Ambrosi et al. (24)
100 residents in nursing homes (~85.5 years old)	-Two untrained dogs (3 to 8 years old): Retrievers or retriever mixes -Robot seal (PARO) -Soft toy cat	-Interact with the ‘animal’ both verbally and by touching it	Biweekly visits for 6 weeks	-MMSE -GDS -CAM -Sleep data -Weight and height	↓MMSE ↑GDS ↑Sleep time	Thodberg et al. (183)
12 autistic children (5 to 10 years old)	-Dogs	-touching, holding, and petting activities	18 sessions (20 minutes long)	-Autistic behaviors (handing postures, humming, spinning)	↓ Autistic behaviors	Redefer and Goodman (192)

		-feeding, ball-throwing, bubble blowing, and grooming		objects, and repetitive jumping) -Social interaction	↑ Social interaction	
Children (12–18 years old) diagnosed with ASD	Labrador and Labradoodle breed	-Small exercises and performing certain commands of the dog	Six weekly sessions	Behavioral synchrony and CBCL	↑Proportion of synchrony ↓CBCL	Griffioen et al. (196)
Children from 4 to 19 years, diagnosed with ASD	15 trained dogs	-Brushing, feeding, walking, and playing with the dog	One hour once a week for five weeks	-Child's interactions and communications -Confidence -Motivation -Emotional regulation	↑ Child's interactions and communications ↑ Confidence ↑ Motivation ↑ Emotional regulation	London et al. (197)
Children (7–17 years) diagnosed with ASD	Labrador and Poodle dog breeds	Complete an obstacle course together	From 4 to 6 weeks	-Social confidence -Social motivation -Emotional attunement -Emotional regulation	↑ Emotional attunement ↑ Emotional regulation	Van Der Steen et al. (198)

20 children with ASD (6–14-year-olds)	Two therapy dogs (Boxer breed)	-Warm-up -Circuit of agility activities -Cool-down	Weekly physical activity session for seven weeks (60 min)	-Time of light, moderate to vigorous physical activity -Sedentary time -Estimated bone impacts	↑Light physical activity ↓ Sedentary time	Abadi et al. (194)
10 Children with ASD (2.5 to 6.5 years old)	Clumber Spaniel, Newfoundland, and Border Collie/Yellow Lab cross	-Providing a ball and a stuffed dog to children	Three times per week for a total of 15 weeks	-Behavioral -Verbal responses	↑Laughing ↑ Talked about themselves ↑ Talked more to the dog	Martin and Farnum (27)
Boy diagnosed with ASD (12-year-old)	Female Labrador retriever (trained)	- one-to-one activities	- Each week (for 45 minutes)	-Positive behavior -Positive physical contact -Aggressive behaviors	↑Smiling ↑ Positive physical contact ↓ Aggressive behaviors	Silva et al. (200)
Children with ASD (ages 8–14)	S/N	S/N	- 12 weeks of weekly treatment	- Functional Problems subscale -Social deficits -Social communication	↓ Functional Problems subscale ↓ Social deficits ↑ Social communication	Becker et al. (28)

				-Repetitive behaviors	↓ Repetitive behaviors	
Three preschool children (two boys and a girl, aged 7-8 years) with ASD	A Labrador dog (2 years old)	-Freely interact with the dog (i.e., greet, touch, or hug the dog)	-Three h/day therapy (two sessions per week)	-Appropriate Social Interactions -Relevant to the Target Social Skill -Level of Prompt Needed to Provide the Expected Social Response - Frequency of the Initiations of Social Interactions	↑ Appropriate Social Interactions ↑ Relevant to the Target Social Skill ↓ Level of Prompt Needed to Provide the Expected Social Response ↑ Frequency of the Initiations of Social Interactions	Grigore et al. (202)
10 autistic children (aged 7–10)	Two Golden Retrievers	- Take care of them, for example, by combing their hair and feeding them. -Walk the dogs and throw balls to them	-14 individual sessions	-Verbal social behavior	↑ Verbal social behavior	Fung et al. (191)

Adults with ASD (18–60 years)	Labradors, Labrador crossbreeds, Golden retrievers, Poodles, and German Wirehaired Pointer dogs were used	-Free interaction with dogs	Individual sessions for a 10-weeks	-Perceived Stress Scale -Social Responsiveness Scale	↓ Perceived Stress Scale ↓ Social Responsiveness Scale	Wijker et al. (29)
6 high-functioning adults with ASD (From 23 to 54 years old)	Two poodles and two Labrador crossbreeds (trained)	-Observation and interpretation of the behaviors of the dog -Basic instructions -Guiding the dog without a leash through an obstacle course -Outdoor walking with the dog	10 weekly one-on-one sessions	-Rosenberg Self-Esteem Scale	↑ Rosenberg Self-Esteem Scale	Wijker et al. (207)
25 adults (36 to 57 years) with ASD	S/N	S/N	Twice a week for 10 weeks	-Tinetti test -Balance	↑ Tinetti test ↑ Balance	Fernández-Sánchez et al. (210)

				-Risk of falling	↑ Risk of falling	
24 adults older than 40 years old, diagnosed with ASD	2 Labrador retrievers (5 and 11 years old)	Climbing stairs, walking, and moving through an obstacle course	Two sessions per week for 10 weeks	-Walking performance - Balance -Risk of falling -Communication abilities -Ability to climb and descend stairs	↑-Balance and Risk of falling ↑ Walking performance	Gómez-Calcerrada et al. (212)
39 Autistic adult (37.1612.1 years old)	-Two Bernese Mountain Dogs -One Bergamasco Shepherd -One French Bulldog -Two medium-sized, mixed-breed dogs	-Taking care of the dog -Grooming -Interactive playing -Driving the dog on a leash	20-session one a week	-Cognitive domains	↑ Attention to movement ↑ Visuomotor coordination ↑ Exploration play ↑ Motor imitation ↑ Social skills	Scorzato et al. (213)
28 Children with ASD (aged 6–12 years)	Twenty specially-trained horses (different	-Grooming, hand walking,	Six-month period	-Problem-solving tasks	↓ Problem-solving tasks	Borgi et al. (214)

	breeds, medium size)	and horseback riding		-Vineland Adaptive Behavior Scale	↑ Vineland Adaptive Behavior Scale	
children with ASD (aged 9–14 years)	Horses	- Riding activities	S/N	- Social Responsiveness Scale -Sensory profile	↑Communication ↑ Affective state ↑ Social attention ↑ Physical movements ↑ Dynamic motor skills	Măierean et al. (215)
34 children (aged 5–10 years) with ASD	Horses	-Riding backhorses -Walk, trot, and halt on their horse	-12-week horseback riding intervention	-Social Responsiveness Scale -Sensory profile	↑ Social Responsiveness Scale ↑ Sensory profile	Bass et al. (216)
127 participants with ASD (ages 6–16 years)	Horses	- helmet and mounted a horse	- 10-week interventions were a minimum of 45 minutes	-ABC-C scale -Self-regulation -Socialization -Communication	↓ Irritability ↓ Hyperactivity scores ↑ Social cognition	Gabriels et al. (30)
240 autistic children (6–12 years)	Horses	-Riding backhorses	45–70 min sessions of horse-assisted riding,	-Social function	↑ Social skills	Chen et al. (184)

			1–2 times per week, for 7–24 weeks	-Aberrant behavior		
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Supplementary table 2. Abbreviations: (N/S) Not Specified; (ESI) Child Stress Symptoms Inventory; (AUQEI) Quality of Life Evaluation Scale; (BRUMS) Adapted Brunel Mood Scale; (HR) Heart rate; (PANSS) Positive and Negative Syndrome Scale; (QoL) quality of life; (EQ-5D) Health-Related Quality of Life Questionnaire; (sAA) Alpha-amylase; (MoCA) Montreal Cognitive Assessment; (CST) Chair Stand Test; (TUG) Timed Up-and-Go; (5MWT) 5-Meter Walk Test; (ACIS) Assessment of Communication and Interaction Skills; (SAFE) Social Adaptive Functioning Evaluation Scale; (ADLs) activities of daily living; (GDS) Geriatric Depression Scale; (CSDD) Cornell Scale for Depression in Dementia; (BDI-9) Beck Depression Inventory; (STAI) Spielberger State Anxiety Inventory; (WBI) WHO Well-Being Index; (IIRS) Illness Intrusiveness Rating Scale; (VAS) Visual Analogue Scale; (CDI) Child Depression Inventory; (SCARED) Screen for Child Anxiety Related Disorders; (ERC) Brief Experiences in Close Relationships; (SEQ-C) Self-Efficacy Questionnaire for Children, Emotional Self-Efficacy Subscale; (MMSE) Mini-Mental State Examination; (GAD-7) Generalized Anxiety Disorder 7; (PANAS) Positive and Negative Affect Schedule; (IPQ-R) Illness Perception Questionnaire-Revised; (NPRS) Numeric Pain Rating Scale; (CAM) Confusion Assessment Method; (ASD) autism spectrum disorder; (CBCL) Child Behavior Checklist; (ABC-C scale) the Aberrant Behavior Checklist;