Understanding the impact of dog ownership on autistic adults: implications for mental health and suicide prevention

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 Table S1. Activities described to impact on life satisfaction

Well-being outcome	Most frequent subthemes (≥5% mentions) and the most common activity within that subtheme
Increase in	
life satisfaction	°Exercise with the dog (4; 19.0%)
(21 mentions)	°Dog shows good behaviour, training skills (3; 14.3%)
	°Training the dog, doing agility, scent work (3; 14.3%)
	°Tactile interactions initiated by the owner or unclear (3; 14.3%)
	°Having/raising the dog (2; 9.5%)
	°Close dog-owner interactions (2; 9.5%)
	°Tactile interactions initiated by the dog (2; 9.5%)
Decrease in	
life satisfaction (0 mentions)	No activity has been reported to decrease life satisfaction

 Table S2. Characteristics of the 36 participants and their dogs

Category	n	%	Category	n	%
Sex			Anxiety (GAD-7)		
Female	18	50.0%	No symptoms	1	2.8%
Male	18	50.0%	Minimal	2	5.6%
Age (in years)			Mild	15	41.7%
18-24	5	13.9%	Moderate	7	19.4%
25-34	14	38.9%	Severe	11	30.6%
35-44	7	19.4%	Number of dogs owned		
45-54	6	16.7%	1	23	63.9%
<i>55-54</i>	3	8.3%	2	8	22.2%
65-74	1	2.8%	3 or more	5	13.9%
Location in the UK			Sex of the dog*		
England			Female	20	55.6%
East Midlands	4	11.1%	Male	23	63.9%
East of England	2	5.6%	Age of the dog*		
Greater London	5	13.9%	Below 12 months	3	8.3%
North East England	1	2.8%	1-3 years	16	44.4%
North West England	5	13.9%	4-6 years	12	33.3%
South East England	5	13.9%	7-9 years	13	36.1%
South West England	6	16.7%	10 or more years	5	13.9%
West Midlands	2	5.6%	Length of dog ownership*		
Scotland	3	8.3%	Below 12 months	4	11.1%
Wales	3	8.3%	1-3 years	19	52.8%
Expertise in dog-related field			4-6 years	14	38.9%
Yes, e.g., training, behaviour	6	16.7%	7-9 years	7	19.4%
No	30	83.3%	10 or more years	4	11.1%
Depression (PHQ-9):			Reason for acquiring dog*		
No symptoms	0	0.0%	Autism service dog	6	16.7%
Minimal	7	19.4%	Other: pet, company, sport	34	94.4%
Mild	12	33.3%	Size of the dog*		
Moderate	9	25.0%	Small	8	22.2%
Moderately severe	5	13.9%	Medium	24	66.7%
Severe	3	8.3%	Large	9	25.0%

^{* %} exceeds 100% in these categories as the 'n' is the number of participants, not dogs.

	Dog human related activities (themes, subthemes and activities)	HEDONIC WELL-BEING Increase in Decrease in					EUD AIMONIC WELL-BEIN Increase in								Decre	ase in	is †			of mber			
Seminary Sem	I.inevitable features of dog ownership	NH		PH	PL	NH			PL	Au	En		Po	Pu	Se	Au	En	Pe	Po	Pu	Se	LS	N E
Selection of the select	a. Having/raising the dog	0.0%	0.0%	3.0%	1.6%	2.9%	11.8%	0.0%	0.0%	19.1%	7.4%	19.1%	5.7%	12.0%	9.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	72
Section	2.Raising the dog b. Maintenance or dog, e.g., costs, trips to the vet, rood/object		0.0%	1.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	9
Control Cont	3.General costs of keeping dog, e.g., vet, insurance, food, etc																						
Section Continue	5.Buying or planing to buy things for the dog, e.g., food, clothes, toys,																						
March Marc	6.Find a better house, earn more money, stop drinking for the dog																						
Separate service of the separa	hotels	1.7%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5
Mathematical and properties 1.00	a.8.Dog sick or injured, e.g.the situation, treatment																						
Column	c.10.Death of dog (e.g., euthanasia), possibility of dog dying																						
Section Personal properties Personal p	a. The presence of the dog - inside and outside the house																						
Column C			0.0%	0.0%	2.7%	4.3%	2.9%	0.0%	0.0%	2.1%	2.1%	0.0%	1.6%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15
Conting stands Cont										0.0%													
Seminole Methodology of the control	b.Reduced dog interaction, e.g., not having the dog outside, receiving	0.0%																					
Section Sect	15.Not having the dog while out																						
Section Sect	c.Exercise with the dog, e.g., walking, hiking																						0
Control Cont	18.Walking									17.0%	24.2%		19.7%	20.3%								19.0%	133
Column																							20
Separate plant of the plant of		0.6%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2
Column C	21.Dog alerts owner of a panic attack, high anxiety, PoTS																						
Manufach Andrew 19																							
Separate service servi	f.Close dog-owner interactions, e.g., dog greets owner, talking to the dog		0.07	0.444	2.000	F. 700	0.57	0.071	0.57	0.67	0.000	0.000	0.57	0.67	0.57	0.67	0.57	0.57	0.07	0.57	0.071	0.000	
Section Personal	25.Dog follows the owner or seeks owner for refuge/protection	1.1%	0.0%	1.2%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	7.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	13
Seminary Sem	27.Dog shows affection, love towards owner - general, non-specified	0.6%	0.0%	0.6%	1.6%	1.4%	8.8%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	0.8%	9.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16
Second column	29.Greeting the owner	0.6%	0.0%	5.4%	3.3%	2.9%	2.9%	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	1.5%	9.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	28
Separate programment programme	31.Talking to the dog	0.0%																					
Segretaria	g.Tactile interactions (or very close) initiated by the dog, e.g.,dog lies on the owner																						0
Section Sect	33.Dog sits, lies on the owner or cuddles with owner	0.6%	0.0%	4.2%	12.6%	14.3%	5.9%	0.0%	0.0%	0.0%	3.2%	1.5%	0.0%	0.0%	3.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%	50
Section of the content of the cont																							
Security	36.Dog touches the owner with paw or face, e.g., nudges with nose																						15
Contact and the properties of the properties o		0.6%		0.0%		1.4%	2.9%								1.8%						0.0%		
Seminary sem																							
Control properties of the pr	40.Physical contact with dog - general																						
Mathematic properties of the			0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2
Secure																							
Content property pr	c. Training the dog, doing agility, scent work		0.0%	3.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9
Company and the grant of the property of the company of the comp	45.Training the dog. e.g., obedience, socialisation	1.1%	0.0%	7.2%	1.6%	2.9%	0.0%	0.0%	0.0%	4.3%	1.1%	16.2%	1.6%	2.3%	5.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	14.3%	
Company of the comp	V.Looking after the dog																						0
Content protest protest general content of the protest general content general content general content general content gener	b.48.Stimulating the dog intellectually, enrichments	0.0%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3
Search of Search Serving Servi	d.50.Looking after the dog - general routine	0.0%	0.0%	3.0%	2.2%	0.0%	0.0%	0.0%	0.0%	10.6%	12.6%	10.3%	0.8%	18.0%	5.5%	12.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	62
Scheller field gravene, by Level degree of a street with 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	f.Sense of obligation to the dog, e.g., falling to walk the dog, having to	0.0%	0.0%	0.6%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	4.2%	0.0%	0.0%	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
State plant and present plant and plant and present plant and present plant and present plant and plant an	52.Failure to fulfill dog's needs, e.g., leave the dog alone, do not walk	1.7%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5
Company and home permitting on sheep with the great plane 1	53. Having to fulfill dog's needs, e.g., give company, walk, food		0.0%	0.0%	0.0%	0.0%	2.9%	0.0%	0.0%	8.5%	1.1%	0.0%	0.0%	1.5%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Standard programment region from from 1 cm 1	a.Dog playing with owner, another dog or object																						
Secure service from the control and a real value for this fig. 4 service for 1 and 1	55.Dog playing with other dogs	0.0%	6.5%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5
Security of the security of th	VII.Social interactions with others	0.0%																					0
Second contract of the first period before great under the contract of the first period of the first per	owners																						
Subsequence as second make, 4, Europe general, control and all and an opportunity of the proportion of the control and all and an opportunity of the control and an opportun	c.59.Talk about the dog, e.g. main subject	0.0%	0.0%	1.8%	2.2%	1.4%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	18.9%	0.0%	3.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	34
Staking part of sing groupling to all ording growers on scale mode 0.05 0		0.0%																					0
1579-15 of potative force on social media, returned 0,0% 3.3% 3.8% 3.1% 3.0% 0.																							
## Stampage provided in dispose a continuent, interview Part	63.Post dog picture/video on social media, read comments on																						
Substance Subs	64. Seeing pictures/videos of dogs on social media, internet		0.0%	1.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
65 Serving (65 Serving) (57 March 1998) (58 Serving) (58																							0
23 Degree from the first form 24 Degree from the form 24 Degree from the form 24 Degree from the first form 24 Degre	65.Barking																						
SEX-oring SEX-or	67.Dog or house becomes dirty/smelly, e.g., housesoiling, rolls in fox																20.0%						
Part	68.Snoring		0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1
15.00 15.0	pulls on the lead	1.7%	0.0%	0.6%	0.5%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6
Control Cont	70.Misbehaving - general, e.g., not doing what it is told/expected 71.Out of control outdoors, e.g., chasing animal, running away,		6.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	33.3%	0.0%	0.0%	50.0%	0.0%	12
13 13 13 13 13 13 13 13	escaping		3.2%		0.0%	0.0%		0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%		20.0%	0.0%	0.0%	0.0%	25.0%	0.0%	
Columnication of warm's personal speciment, e.g., degreeming drow with passe 0.05. 0.07% 0	73.Unpredictable behaviour	1.7%																					
Table generalized Pieces April 1997 April 200	c.Disruption of owner's personal space/moment, e.g., dog seeking																						
Summy photosistics (a) destruction of objects, hyperactively 1.75 (or let ment) 2.35 (o	75.Dog breaks into rooms, e.g., opening doors with paws 76.Dog demanding things, e.g., treats, walk, play, attention, objects																						
TREMC As, deg entings crows 2 As 60 Ns 0	d. Unruly behaviours, e.g., destruction of objects, hyperactivity		0.0%	1.2%	0.0%	0.0%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	20.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8
20 20 20 20 20 20 20 20	78.PICA, e.g., dog eating screws	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	1
8. Renful/aggresse behaviours, eg., siral of noise, bitting other dogs \$1.00 g interful for committing eg. points, brush \$1.00 g interful for committing eg. points, brush \$1.00 g interful for committed for com	80. Hyperactive behaviour, e.g., running around the house, puppy																						
22 Dog by Dimpt growing, Jumps, Eging with other modulus 23 x 23 x 24 x 20	e. Fearful/aggressive behaviours, e.g., afraid of noise, biting other dogs																						
Color- proper payments, superation related problems, suffing too much makes	81.Dog afraid of something, e.g.,noise, brush 82.Dog biting, growling, lunging, fighting with other individuals																						
84 Dog separation related problems 0.6% 0.0%	f.Other: poor appetite, separation related problems, sniffing too much in walks																						
Number of meetions 175 31 167 182 70 34 2 3 47 55 68 122 133 55 8 5 3 17 1 4 21 1243	83.Dog not willing to eat, e.g., does not like the food 84.Dog separation related problems	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1
				•		1								•				I				•	

Figure S1. Heat map and number of mentions of 85 dog-human related activities and their reported well-being outcomes. Darker cells represent a higher proportion of mentions of an activity (row) in a respective well-being outcome (column). E.g., 'the presence of the dog' (dark cell) was mentioned to increase autonomy more times than 'training the dog' (light cell). N and P (negative and positive valence, respectively), H and L (high and low arousal, respectively), Au (autonomy), En (environmental mastery), Pe (personal growth), Pu (purpose in life), Po (positive relations), Se (self-acceptance), LS (life satisfaction increase).

Interview guide/script

Welcome (5 min)

- Hello . Thank you for joining this interview!
- My name is Ana Maria Barcelos, I am a PhD student at the University of Lincoln.
- As you saw on the information sheet, we are investigating how dog ownership impacts on the well-being of autistic dog owners.
- Today we will talk about the activities you and your dog do and how they influence your mental health.
- The meeting will be audio recorded, but all the information you share here will be anonymised so you don't need to worry about being honest with us.
- Your Amazon voucher will be sent to you via email after this session.
- Feel free to use the toilet during our conversation or ask for a break at any point. Our interview should take around 30 minutes.
- You are unique and your opinion is very important to the research.
- There is no right or wrong, feel free to share your experiences as a dog owner.
- The consent form is already signed. Do you have any question before we start?
- Start audio recording.

Explanation about what you mean by direct and indirect dog-related activities - PPT slides (2 min)

Any questions?

<u>Explanation about the four aspects of hedonic well-being and life satisfaction - PPT slides</u>
(3 min)

Any questions?

Exercise 1 (10 min):

Now, I would like you to think about the four most important dog-related activities to these aspects of well-being (your feelings and your life satisfaction). You can write the activities and their well-being outcomes on a piece of paper to help you organise your ideas

Explanation about the six elements of eudaimonic well-being - PPT slides (3min) Any questions?

Exercise 2 (10 min):

Now, we will do something similar to the first exercise, but now I would like you to think about these new elements of well-being. Can you think about **the four most important dog-related activities associated with one or more elements**? You can write the activities and well-being outcomes on a piece of paper if that helps.

^{*}Remind them that they can talk about both direct and indirect activities, and about positive and negative activities, there are no limitations.

^{*}Ask additional questions to clarify the activity/well-being outcome described by the participant

- *Remind them that they can talk about both direct and indirect activities, and about positive and negative activities, there are no limitations.
- *Ask additional questions to clarify the activity/well-being outcome described by the participant

Thank you and further information (2 min)

- It was a pleasure to meet you.
- Thank you again for joining this study.
- We had a very nice discussion about dog-related activities and well-being.
- I am very happy with the information you provided, I am sure it will be very useful to our research.
- I will send you the Amazon voucher via email in a few minutes.
- Do you have any question before we finish the call?
- Bye. Have a lovely day.