Supplementary Material

Social Robot Interventions for People with Dementia: A Systematic Review on Effects and Quality of Reporting

Supplementary Material 1. Search components and search terms

Component	Term
Dementia	DEMENTIA**
	ALZHEIMER DISEASE**
	COGNITIVE DISORDERS
	MEMORY DISORDERS
	MCI
	MILD COGNITIVE IMPAIRMENT
Technology	HUMAN-ROBOT
	HUMAN ROBOT
	ROBOTICS**
	ROBOT
	ROBOTIC SYSTEM
	ROBOTIC ASSISTANCE SYSTEM
	SOCIAL ROBOTS
	SOCIAL ROBOTICS
	TELEROBOTICS
	ROBOT THERAPY
	ROBOTHERAPY
	ANDROID
	ARTIFICIAL COMPANION
	COMPANION ROBOT
	EMBODIED COMMUNICATION
	EMBODIED CONVERSATION
	HUMANOID
	GYNOID
	TELENOID
	GEMINOID
	TELEPRESENCE
	TELEROBOT
	PARO
	AIBO
	NAO
	ICAT
	CARE-O-BOT
	ROBOCARE
	GIRAFF

*The table lists the controlled vocabulary and further search terms based on MEDLINE (controlled vocabulary was adapted to other databases); **Term was also used as controlled vocabulary.

Supplementary Material 2. Database-specific search strategies

2.1. CINAHL

Date: 28.11.2018

#	Enter	Hits
1	TI (DEMENT* OR ALZHEIMER* OR "COGNITIVE* DISORDER*" OR "MEMORY DISORDER*" OR MCI OR "MILD COGNITIVE IMPAIR*") OR AB (DEMENT* OR ALZHEIMER* OR "COGNITIVE* DISORDER*" OR "MEMORY DISORDER*" OR MCI OR "MILD COGNITIVE IMPAIR*") OR MH DEMENTIA+	78497
2	TI (ROBOT* OR TELEROBOT* OR ANDROID* OR "ARTIFICIAL COMPANION*" OR "EMBODIED COMMUNICATION*" OR "EMBODIED CONVERSATION*" OR HUMANOID OR GYNOID OR TELENOID OR GEMINOID OR TELEPRESEN* OR TELEROBOT* OR "HUMAN-ROBOT" OR "HUMAN ROBOT" OR PARO OR AIBO OR NAO OR ICAT OR "CARE-O-BOT" OR ROBOCARE OR GIRAFF) OR AB (ROBOT* OR TELEROBOT* OR ANDROID* OR "ARTIFICIAL COMPANION*" OR "EMBODIED COMMUNICATION*" OR "EMBODIED CONVERSATION*" OR HUMANOID OR GYNOID OR TELENOID OR GEMINOID OR TELEPRESEN* OR TELEROBOT* OR "HUMAN-ROBOT" OR "HUMAN ROBOT" OR PARO OR AIBO OR NAO OR ICAT OR "CARE-O-BOT" OR ROBOCARE OR GIRAFF) OR MH ROBOTICS	15766
3	#1 AND #2	136

2.2. MEDLINE via Web of Science

Date: 28.11.2018

#	Enter	Hits
1	TS=(DEMENT* OR ALZHEIMER* OR "COGNITIVE* DISORDER*" OR "MEMORY DISORDER*" OR MCI OR "MILD COGNITIVE IMPAIR*") OR MH=DEMENTIA	238476
2	TS=(ROBOT* OR TELEROBOT* OR ANDROID* OR "ARTIFICIAL COMPANION*" OR "EMBODIED COMMUNICATION*" OR "EMBODIED CONVERSATION*" OR HUMANOID OR GYNOID OR TELENOID OR GEMINOID OR TELEPRESEN* OR TELEROBOT* OR "HUMAN-ROBOT" OR "HUMAN ROBOT" OR PARO OR AIBO OR NAO OR ICAT OR "CARE-O-BOT" OR ROBOCARE OR GIRAFF) OR MH=ROBOTICS	47114
3	#1 AND #2	211

2.3. PsycINFO via Ovid

Date: 28.11.2018

#	Enter	Hits
1	(DEMENT* OR ALZHEIMER* OR "COGNITIVE* DISORDER*" OR "MEMORY DISORDER*" OR MCI OR "MILD COGNITIVE IMPAIR*").mp OR exp ALZHEIMER'S DISEASE/ OR exp DEMENTIA/ OR exp COGNITIVE IMPAIRMENT/	122203
2	(ROBOT* OR TELEROBOT* OR ANDROID* OR "ARTIFICIAL COMPANION*" OR "EMBODIED COMMUNICATION*" OR "EMBODIED CONVERSATION*" OR HUMANOID OR GYNOID OR TELENOID OR GEMINOID OR TELEPRESEN* OR TELEROBOT* OR "MAN-MACHINE" OR "MAN MACHINE" OR "HUMAN-ROBOT" OR "HUMAN-COMPUTER" OR "HUMAN ROBOT" OR "HUMAN COMPUTER" OR "HUMAN ENGINEER*" OR PARO OR AIBO OR NAO OR ICAT OR "CARE-O-BOT" OR ROBOCARE OR GIRAFF).mp OR exp ROBOTICS/	20318
3	#1 AND #2	189

2.4. Cochrane Library

Date: 28.11.2018

#	Enter	Hits
1	DEMENT* OR ALZHEIMER* OR "COGNITIVE* DISORDER*" OR "MEMORY DISORDER*":ti,ab,kw OR MH DEMENTIA	20829
2	ROBOT* OR TELEROBOT* OR ANDROID* OR "ARTIFICIAL COMPANION*" OR "EMBODIED COMMUNICATION*" OR "EMBODIED CONVERSATION*" OR HUMANOID OR GYNOID OR TELENOID OR GEMINOID OR TELEPRESEN* OR TELEROBOT* OR "HUMAN-ROBOT" OR "HUMAN ROBOT" OR PARO OR AIBO OR NAO OR ICAT OR "CARE-O-BOT" OR ROBOCARE OR GIRAFF:ti,ab,kw OR MH ROBOTICS	3895
3	#1 and #2	85

2.5. Web of Science Core Collection

Date: 28.11.2018

#	Enter	Hits
1	TS=(DEMENT* OR ALZHEIMER* OR "COGNITIVE* DISORDER*" OR "MEMORY DISORDER*" OR MCI OR "MILD COGNITIVE IMPAIR*")	291761
2	TS=(ROBOT* OR TELEROBOT* OR ANDROID* OR "ARTIFICIAL COMPANION*" OR "EMBODIED COMMUNICATION*" OR "EMBODIED CONVERSATION*" OR HUMANOID OR GYNOID OR TELENOID OR GEMINOID OR TELEPRESEN* OR TELEROBOT* OR "HUMAN-ROBOT" OR "HUMAN ROBOT" OR PARO OR AIBO OR NAO OR ICAT OR "CARE-O-BOT" OR ROBOCARE OR GIRAFF)	247372
3	#1 AND #2	373

Supplementary Material 3. Detailed study characteristics and results

Characteristics and results of included studies (sort by descending publication year, n=16)

Reference **Country** **Design** **Setting**	**Number of participants: n** - **Age: M (SD), range** - **Female: n (%)** - **Type of dementia** - **Severity of dementia** - **MMSE/RUDAS: M (SD), range**	**Intervention(s)** - **Classification of social robot** - **Frequency** - **Duration** - **Length** - **Format** - **Location** **Control group(s)** **Outcome(s): measurement(s)** **Measurement time(s)**	**Result(s)**
Demange et al., 2018 [1] France Pre-post trial Geriatric hospital	17 - 83 (7.9), 77-95 - NA (80) - Major NCD, DSM-5 - Non-severe - MMSE: 16.1 (3.9), NA	PARO - Pet robot - 2/week - 15’ - 2 weeks - Individual, facilitated - Patient room No control group Emotion: I-PANAS SF (subscales PA (↑), NA (↓)) Baseline, 2 weeks	Pre-post, MD PA: 2.15, p=0.02 NA: ×
Moyle et al., 2018 [2] Australia Cluster-RCT LTC	415 (IG: 138; CG1: 140; CG2: 137) - 84-87 (6.9-8.8), NA - 340 (81.9)* - Diverse (47.5%) and NA - NA - RUDAS (Grand mean): 7.8 (NA), 6.5-9.7	IG: PARO - Pet robot - 3/week - 15’ - 10 weeks - Individual, non-facilitated - Wherever the person was CG1: Plush toy (identical sessions like IG) CG2: Usual care Motor activity: Step count (↓), physical activity (↓) Sleep patterns: Awake, lying down, sleep Baseline, 5 weeks, 10 weeks, 15 weeks	Daytime: IG vs. CG1, adjusted MD (95% CI), Cohen’s d Step count: Week 10: −178.44 (−21.06 to −335.83), −0.01, p=0.026 Week 15: −187.09 (−20.49 to −353.69), −0.028, p=0.028 Physical activity: Week 10: −0.54 (−0.00 to −1.08), 0.10, p=0.048 Awake, lying down, sleep: × IG vs. CG2, adjusted MD (95% CI), Cohen’s d Step count: Week 5: −283.95 (−11.85 to −556.06), −0.40, p=0.041 Week 10: −268.81 (−27.33 to −510.29), −0.45, p=0.029 Physical activity, awake, lying down, sleep: × Nighttime: IG vs. CG1, adjusted MD (95% CI), Cohen’s d Step count: Week 5: −73.93 (−22.77 to −125.09), −0.38, p=0.005 Week 10: −64.88 (−16.02 to −113.74), −0.28, p=0.009 Week 15: −55.69 (−8.97 to −102.41), −0.25, p=0.019 Physical activity: Week 10: −0.19 (−0.03 to −0.35), −0.08, p=0.021 Awake, lying down, sleep: × IG vs. CG2, adjusted MD (95% CI), Cohen’s d Step count: Week 15: −51.60 (−0.86 to −102.34), −0.36, p=0.046 Physical activity:

Reference **Country** **Design** **Setting**	**Number of participants: n** - **Age: M (SD), range** - **Female: n (%)** - **Type of dementia** - **Severity of dementia** - **MMSE/RUDAS: M (SD), range**	**Intervention(s)** - **Classification of social robot** - **Frequency** - **Duration** - **Length** - **Format** - **Location** **Control group(s)** **Outcome(s): measurement(s)** **Measurement time(s)**	**Result(s)**
			Week 10: −0.19 (−0.03 to −0.35), −0.10, p=0.018 Week 15: −0.34 (-0.06 to −0.61), −0.16, p=0.015 Awake, lying down, sleep: ×
Liang et al., 2017 [3] New Zealand RCT Day care center Home	Overall: 30 (IG:15; CG: 15) - NA, 67-98 - NA (64) - NA - NA - NA	IG: Phase 1: PARO (Day care center) - Pet robot - 2-3/week - 30’ - 6 weeks - Group (3-6 persons), facilitated - Separate room, home IG: Phase 2: PARO (Home): 6 weeks individual use CG: Usual care Cognition: New Zealand version of the Addenbrooke’s Cognitive Examination Agitation: CMAI-SF Neuropsychiatric symptoms: NPI-Q Depressive symptoms: CSDD (↓) Dementia-related medication Physical: Systolic/diastolic blood pressure, heart rate, hair cortisol concentration Baseline, 6 weeks, 12 weeks	IG vs. CG, M (SD) Depressive symptoms: p=0.18 Baseline: 6.38 (5.69) vs. 8.27 (6.42) 6 weeks: 4.77 (4.29) vs. 4.91 (2.74) 12 weeks: 7.77 (6.72) vs. 5.18 (3.06) Cognition, agitation, neuropsychiatric symptoms, systolic/diastolic blood pressure, heart rate, hair cortisol concentration: × Dementia-related medication: no change
Moyle et al., 2017 [4] Australia Cluster-RCT LTC	415 (IG: 138; CG1: 140; CG2: 137) - 84-86 (7.1-8.4) - 314 (75.7)* - NA - NA - RUDAS (Grand mean): 7.3 (NA), 6.5-8.3*	IG: PARO - Pet robot - 3/week - 15’ - 10 weeks - Individual, non-facilitated - Wherever the person was CG1: Plush toy (identical sessions like IG) CG2: Usual care Mood: Anger (↓), anxiety/fear (↓), neutral (↓), pleasure (↑), and sadness (↓) via video observation Agitation via video observation (↓) and CMAI-SF Baseline, 1 week, 5 weeks, 10 weeks, 15 weeks	IG vs. CG1, adjusted MD (95% CI), Cohen’s d Anger: Week 5: 1.00 (1.99 to 0.01), 0.22, p=0.047 Pleasure: Week 1: 5.51 (8.06 to 2.95), 0.59, p<0.0001 Anxiety/fear, neutral, sadness, agitation (video observation), agitation (CMAI-SF): × IG vs. CG2, adjusted MD (95% CI), Cohen’s d Anger: Week 1: 1.00 (1.89 to 0.11), 0.20, p=0.028 Week 5: 1.14 (2.04 to 0.24), 0.26, p=0.013 Neutral: Week 1: −6.65 (−0.82 to −12.47), −0.36, p=0.025 Week 5: −5.46 (−1.85 to −9.06), −0.32, p=0.003 Pleasure: Week 1: 6.62 (9.09 to 4.16), 0.78, p=<0.0001 Week 5: 4.13 (6.08 to 2.17), 0.60, p=<0.0001 Week 10: 2.19 (3.91 to 0.46), 0.35, p=0.013 Agitation (video observation): Week 1: 4.56 (8.37 to 0.74), 0.24, p=0.019 Week 10: 6.05 (10.66 to 1.44), 0.31, p=0.010

Reference **Country** **Design** **Setting**	**Number of participants: n** - **Age: M (SD), range** - **Female: n (%)** - **Type of dementia** - **Severity of dementia** - **MMSE/RUDAS: M (SD), range**	**Intervention(s)** - **Classification of social robot** - **Frequency** - **Duration** - **Length** - **Format** - **Location** **Control group(s)** **Outcome(s): measurement(s)** **Measurement time(s)**	**Result(s)**
			Anxiety/fear, sadness, agitation (CMAI-SF): ×
Petersen et al., 2017 [5] USA RCT LTC	61 (IG: 35; CG: 26) - 83.4 (NA), NA - 47 (77) - NA - Mild/moderate - NA	IG: PARO - Pet robot - 3/week - 20’ - 12 weeks - Group (6 persons), facilitated - Activity room CG: Usual care Anxiety: RAID (↓) Cognition: GDS-1 Depressive symptoms: CSDD (↓) Medication dose (↓): Pain, sleep, depression, behavior Physical: Pulse oximetry (↑)$^{+}$, pulse rate (↓)$^{+}$, galvanic skin response (↑)$^{+}$ Baseline, 12 weeks	IG vs. CG, MD Anxiety: 2.5 vs. 0.55, p=0.003 Physical (pulse oximetry): 1.66 vs. 0.46, p=0.0001 Physical (pulse rate): -2.97 vs. 0.08, p=0.0001 Physical (galvanic skin response): 5.47 vs. 0.99, p=0.0005 Depressive symptoms: 2.81 vs. 0.78, p=0.001 Pain medication dose: -2.22 vs. 0.26, p=0.005 Behavior medication dose: -2.09 vs. -0.09, p=0.0009 Cognition, sleep medication dose, depression medication dose: ×
Rouaix et al., 2017 [6] France Pre-post trial Geriatric hospital	9 - 86 (8.7), 68-95* - 7 (77.8%) - NA - Non-severe - MMSE: 16 (3.5), 12-22*	Classic therapy and NAO - Humanoid robot - 1 session (classic therapy), 3 sessions (NAO) - 19-26’ - 5 weeks - Individual, non-facilitated - Patient room No control group Emotion: I-PANAS-SF (subscales PA (↑), NA) Wellbeing: EVIBE^{+} Baseline, 5 weeks	Pre-post, M PA: 9.78 vs. 13.67, p=0.01 NA, well-being: ×
Jøranson et al., 2016 [7] Norway Cluster-RCT LTC	53 (IG: 27; CG: 26) - IG: 83.9 (7.2), NA; CG: 84.1 (6.7) NA - 36 (69.8)* - NA - Mild/moderate/severe - NA	IG: PARO - Pet robot - 2/week - 30’ - 12 weeks - Group (max. 6 persons), facilitated - Separate room CG: Usual care Quality of life: QUALID (↓) Psychotropic medication (↓) Baseline, 12 weeks, 24 weeks	IG vs. CG, Estimate (95% CI) Quality of life (severe dementia): 12 weeks: × 24 weeks: 7.92 (2.16 to 13.69), p=0.008 Quality of life (overall), quality of life (mild/moderate dementia): × IG vs. CG, M (SD) Psychotropic medication (severe dementia): 12 weeks: 0.75 (0.46) vs. 1.67 (0.71), p=0.007 24 weeks: × Psychotropic medication (mild/moderate dementia): ×

Reference **Country** **Design** **Setting**	**Number of participants: n** - **Age: M (SD), range** - **Female: n (%)** - **Type of dementia** - **Severity of dementia** - **MMSE/RUDAS: M (SD), range**	**Intervention(s)** - **Classification of social robot** - **Frequency** - **Duration** - **Length** - **Format** - **Location** **Control group(s)** **Outcome(s): measurement(s)** **Measurement time(s)**	**Result(s)**
Kuwamura et al., 2016 [8] Japan Pre-post case study Group home	2 - 94.5 (2.1), 93-96* - 2 (100)* - Alzheimer's disease - Moderate - MMSE: 14.5 (3.5), 12-17*	Face to face and Telenoid - Telepresence robot - 1-2/week - 15' - 12 weeks - Individual, facilitated - Public space No control group Cognition: MMSE (↑) Quality of life: QOL-D (↑; except 'negative affect and actions' and 'restlessness': ↓) Behavior: DBD (↓) Neuropsychiatric symptoms: NPI-NH Japanese version (↓) Activities of daily living: BI (↑), VTI (↑) Baseline, 12 weeks	Pre-post Cognition: P1: 12/30 vs. 13 P2: 17 vs. 14 Quality of life: Positive affect: P1: 28/28 vs. 28 P2: 28 vs. 20 Negative affect and actions: P1: 8/24 vs. 7 P2: 12 vs. 10 Ability of communication: P1: 20/20 vs. 20 P2: 20 vs. 20 Restlessness: P1: 8/20 vs. 7 P2: 11 vs. 8 Attachment with others: P1: 10/16 vs. 14 P2: 16 vs. 16 Spontaneity and activity: P1: 14/16 vs. 13 P2: 16 vs. 16 Behavior: P1: 13/112 vs. 8 P2: 25 vs. 26 Neuropsychiatric symptoms: P1: Agitation/aggression frequency/severity/caregiver distress: 1/1/1 vs. none P2: None vs. agitation/aggression: 4/1/1 and anxiety: 4/1/2 Activities of daily living: P1: 45/100 vs. 45 P2: 85 vs. 85 Activities of daily living (VTI): P1: 8/10 vs. 8 P2: 8 vs. 9
Moyle et al., 2016 [9] Australia Pre-post case study LTC	5 - 84 (11.7), 68-98* - 5 (100)* - Alzheimer's disease (60%), young onset (20%) and unknown - Mild/moderate - MMSE: 20 (9.4), 6-30*	CuDDler - Pet robot - 3/week - 30' - 5 weeks - Individual, facilitated - Separate room No control group	Pre-post Agitation: P1: 49 vs. 52 P2: 38 vs. 42 P3: 51 vs. 36 P4: 70 vs. 74 P5: 81 vs. 97

Reference **Country** **Design** **Setting**	**Number of participants: n** - **Age: M (SD), range** - **Female: n (%)** - **Type of dementia** - **Severity of dementia** - **MMSE/RUDAS: M (SD), range**	**Intervention(s)** - **Classification of social robot** - **Frequency** - **Duration** - **Length** - **Format** - **Location** **Control group(s)** **Outcome(s): measurement(s)** **Measurement time(s)**	**Result(s)**
		Agitation: CMAI (↓) Baseline, 5 weeks	
Bemelmans et al., 2015 [10] Netherlands Pre-post trial (repeated measures, ABAB) LTC	91 - NA - 57 (80) - NA - Mild/moderate/severe - NA	IG: PARO (B-phase) - Pet robot - 10 sessions - NA - 8 weeks - Individual, facilitated - NA CG: Usual Care (A-phase) Mood: 5-point mood scale (↓)$^{+}$ Behavior: IPPA (↓)$^{+}$ Baseline, 16 weeks	Average phase differences, M Mood: 0.54 (indicates a positive effect) Behavior (IPPA): 0.63 (indicates a positive effect)
Gustafsson et al., 2015 [11] Sweden Pre-post case study (repeated measures, ABA) LTC	4 - NA, 82-90 - 2 (50)* - NA - Severe - NA	JustoCat (B-phase) - Pet robot - NA - NA - 7 weeks - Individual, facilitated - NA No control group Agitation: CMAI (↓) Quality of life: QUALID (↓) Baseline, 7 weeks, 9 weeks	Pre-post (A vs. B vs. A), M Agitation: P1: 55.9 vs. 62.0 vs. 69.7 P2: 34.9 vs. 34.5 vs. 40.7 P3: 64.7 vs. 69.0 vs. 54.7 P4: 48.6 vs. 46.5 vs. 43.3 Quality of life: P1: 19.1 vs. 19.3 vs. 19.0 P2: 15.3 vs. 13.8 vs. 14.0 P3: 29.1 vs. 28.2 vs. 25.7 P4: 22.1 vs. 21.5 vs. 17.3
Jøranson et al., 2015 [12] Norway Cluster-RCT LTC	53 (IG: 27; CG: 26) - IG: 83.9 (7.2), NA; CG: 84.1 (6.7) - 36 (69.8)* - NA - Mild/moderate/severe - NA	IG: PARO - Pet robot - 2/week - 30’ - 12 weeks - Group (max. 6 persons), facilitated - Separate room CG: Usual care Agitation: BARS (↓) Depressive symptoms: CSDD (↓) Baseline, 12 weeks, 24 weeks	IG vs. CG, Estimate (95% CI) Agitation: 12 weeks: × 24 weeks: -5.51 (0.1 to 11.0), p=0.048 Depressive symptoms: 12 weeks: × 24 weeks: -3.9 (0.4 to 7.3), p=0.028

Reference **Country** **Design** **Setting**	**Number of participants: n** - **Age: M (SD), range** - **Female: n (%)** - **Type of dementia** - **Severity of dementia** - **MMSE/RUDAS: M (SD), range**	**Intervention(s)** - **Classification of social robot** - **Frequency** - **Duration** - **Length** - **Format** - **Location** **Control group(s)** **Outcome(s): measurement(s)** **Measurement time(s)**	**Result(s)**
Valenti Soler et al., 2015 [13] Spain Partial Crossover-Cluster-RCT LTC	Phase 1 101 (IG1: 33; IG2: 30; CG: 38) - 84.7 (NA), 58-100 - 89 (88)* - Alzheimer's disease (84.2%) and others - Mild/moderate/severe - NA Phase 2 110 (IG: 42; CG1: 36; CG2: 32) - 84.7 (NA), 59-101 - 99 (90)* - Alzheimer's disease (88.2%) and others - Mild/moderate/severe - NA	<u>Phase 1</u> IG1: PARO - Pet robot - 2/week - 30-40' - 12 weeks - Group (9-15 persons, mild/mild-moderate dementia), individual (moderate-severe/severe dementia), facilitated - NA IG2: NAO - Humanoid robot - 2/week - 30-40' - 12 weeks - Group (9-15 persons, mild/mild-moderate dementia), individual (moderate-severe/severe dementia), facilitated - NA CG: Usual care <u>Phase 2</u> IG: PARO - Pet robot - 2/week - 30-40' - 12 weeks - Group (9-15 persons, mild/mild-moderate dementia), individual (moderate-severe/severe dementia), facilitated - NA CG1: Dog CG2: Usual care Cognition: GDS-1 (↓), sMMSE, MMSE (↑) Neuropsychiatric symptoms: NPI Apathy: APADEM-NH (↓) Quality of life: QUALID (↓) Baseline, 12 weeks	<u>Phase 1</u> IG1 vs. CG Apathy: p=0.049 Cognition (sMMSE, MMSE), neuropsychiatric symptoms, quality of life: × IG2 vs. CG Apathy: p=0.030 Cognition (MMSE): 0.022 Cognition (sMMSE), neuropsychiatric symptoms, quality of life: × <u>Phase 2</u> IG vs. CG2 Quality of life: p=0.044 Cognition (sMMSE, MMSE), neuropsychiatric symptoms, apathy: × IG vs. CG1: ×
Valenti Soler et al., 2015 [13] Spain	Phase 1 20 - 77.9 (NA), 68-87 - 10 (50)	<u>Phase 1</u> IG: NAO - Humanoid robot - 2/week	<u>Phase 1</u> Pre-post, MD Neuropsychiatric symptoms: -11.11, p=0.007 Cognition (GDS-1, sMMSE, MMSE), apathy, quality of life: ×

Reference **Country** **Design** **Setting**	**Number of participants: n** - **Age: M (SD), range** - **Female: n (%)** - **Type of dementia** - **Severity of dementia** - **MMSE/RUDAS: M (SD), range**	**Intervention(s)** - **Classification of social robot** - **Frequency** - **Duration** - **Length** - **Format** - **Location** **Control group(s)** **Outcome(s): measurement(s)** **Measurement time(s)**	**Result(s)**
Pre-post trial Day care center	- Alzheimer's disease (75.0%) and others - Moderate/severe - NA Phase 2 17 - 79.0 (NA), 69-87 - 10 (58.8)* - Alzheimer's disease (82.4%) and others - Moderate/severe - NA	- 30-40’ - 12 weeks - Group (9-15 persons, mild/mild-moderate dementia), individual (moderate-severe/severe dementia), facilitated - NA No control group <u>Phase 2</u> IG: PARO - Pet robot - 2/week - 30-40’ - 12 weeks - Group (9-15 persons, mild/mild-moderate dementia), individual (moderate-severe/severe dementia), facilitated - NA No control group Cognition: GDS-1, sMMSE, MMSE Neuropsychiatric symptoms: NPI (↓) Apathy: APADEM-NH Quality of life: QUALID Baseline, 12 weeks	<u>Phase 2</u> Pre-post, MD Neuropsychiatric symptoms, cognition (GDS-1, sMMSE, MMSE), apathy, quality of life: ×
Moyle et al., 2013 [14] Australia Individual crossover-RCT LTC	18 - 85.3 (8.4), NA - NA - NA - Moderate/severe - MMSE: 7.4 (5.0), NA	IG: PARO - Pet robot - 3/week - 45’ - 5 weeks - Group (9 persons), facilitated - NA CG: Reading activity Wandering: Revised AWS-NH (↓) Quality of life: QOL-AD (↑) Apathy: AES (↓) Depressive symptoms: GDS-2 (↓) Anxiety: RAID (↓) Baseline, 5 weeks, 10 weeks	IG vs. CG, M (SD), Cohen’s d (upper/lower) Wandering: 46.2 (12.2) vs. 46.8 (13.0), -0.1/0.0 Quality of life: 37.2 (8.2) vs. 26.4 (16.8), 0.6/1.3 Apathy: 38.7 (13.7) vs. 36.5 (13.7), 0.2/0.2 Depressive symptoms: 4.7 (2.9) vs. 4.3 (3.5), 0.1/0.1 Anxiety: People with Dementia version: 9.8 (6.5) vs. 7 (6.9), 0.4/0.4 Proxy version: 12.8 (11.2) vs. 17.1 (15.1), -0.3/-0.4
Sant’Anna et al., 2012 [15]	5 - NA, 66-96	PARO - Pet robot	Pre-post Neuropsychiatric symptoms: p=0.035

Reference **Country** **Design** **Setting**	**Number of participants: n** - **Age: M (SD), range** - **Female: n (%)** - **Type of dementia** - **Severity of dementia** - **MMSE/RUDAS: M (SD), range**	**Intervention(s)** - **Classification of social robot** - **Frequency** - **Duration** - **Length** - **Format** - **Location** **Control group(s)** **Outcome(s): measurement(s)** **Measurement time(s)**	**Result(s)**
France Pre-post case study Geriatric hospital	- NA - NA - Severe - NA	- 2/week - 20’ - 4 weeks - Individual, facilitated - Patient room No control group Neuropsychiatric symptoms: NPI (↓) Weight: Kilogram Depressive symptoms: CSDD Apathy: AI Baseline, 1 week	P1: 28 vs. 18 P2: 23 vs. 16 P3: 44 vs. 8 P4: 20 vs. 3 P5: 25 vs. 14 Weight, depressive symptoms, apathy: ×

‘, Minutes; ×, No statistical significance; *, Own calculation; ↑, Higher scores indicate positive outcomes; ↓, Higher scores indicate negative outcomes; [+,] Measured before and after each intervention session.
CG, control group; CI, confidence interval; DSM-5, Diagnostic and Statistical Manual, 5th Edition; h, hours; IG, intervention group; LTC, long-term care; M, mean; MD, mean difference; NA, not available; NDC, neurocognitive disorder; p, p value; P1/2, Person; RCT, randomized controlled trial; SD, standard deviation; vs, versus; AES, Apathy Evaluation Scale; AI, Apathy Inventory; APADEM-NH, Apathy Scale for Institutionalized Patients with Dementia-Nursing Home Version; AWS-NH, Algase Wandering Scale-Nursing Home Version; BARS, Brief Agitation Rating Scale; BI, Barthel Index; CMAI-SF, Cohen-Mansfield Agitation Inventory Short Form; CSDD, Cornell Scale for Depression in Dementia; DBD, Dementia Behavior Disturbance Scale; EVIBE, Échelle d'évaluation instantanée de bien-être (English: Instant Assessment of Wellbeing Tool); GDS-1, Global Deterioration Scale; GDS-2, Geriatric Depression Scale; GIP-28, Behavior Rating Scale for Psychogeriatric Inpatients; I-PANAS-SF PA/NA, International Positive and Negative Affect Schedule Short-Form Positive/Negative affectivity subscale; IPPA, Individually Prioritized Problems Assessment; MMSE, Mini-Mental State Examination; NPI, NeuroPsychiatric Inventory; NPI-NH, Japanese Version of the Neuropsychiatric Inventory-Nursing Home Version; NPI-Q, Neuropsychiatric Inventory Brief Questionnaire Form; QUALID, Quality of Life in Late-Stage Dementia; ; QOL-AD, Quality of Life in Alzheimer’s Disease Scale; QOL-D, Quality of Life Questionnaire for Dementia; RAID=Rating for Anxiety in Dementia; sMMSE, severe Mini Mental State Examination; VTI, Vitality Index.

Supplementary Material 4. Detailed reporting assessment

By using the CReDECI 2 checklist, we intended to describe the reporting with regard to the complexity of the given robotic intervention (including training for facilitators, information for staff and/or relatives, etc.). By means of the TIDieR checklist we delineated the reporting of the robotic session for people with dementia. To meet the CReDECI 2 and TIDIieR criteria, we defined a set of minimum required information.

4.1. Detailed reporting assessment by means of CReDECI 2

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Demange et al., 2018 [1]		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information: An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described	N	Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information: All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)	N	Comment: Details about training of facilitator and information for staff are lacking.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Quote: The geriatrists and nurses were given information about the study protocol during formal meetings and in posters. Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Quote: This quasi-experimental pilot study was conducted between January and June 2016 in a geriatric hospital in Paris. The 3 units involved in this study admit patients for between 20 days until many years. … The intervention sessions were conducted in a private room with the patient either sitting or lying on a bed. Comment: No detailed information available.
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	Y	Comment: This is a pilot study.
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	NA	
Description of the strategy for delivering the intervention within the study context Minimum required information:	NA	

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)		
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (eg., the robotic system, training/information material)	NA	
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	NA	
Description of a process evaluation and its underlying theoretical basis Minimum required information: A process evaluation and its underlying theoretical basis needed to be described	NA	
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	NA	
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	NA	
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	N	Quote: In this regard, the present study has fostered a brief, innovative, and possibly cost-effective intervention. Comment: No detailed information available.
Moyle et al., 2018 [2]		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information: An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described	N	Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information: All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)	N	Quote: The therapeutic pet-type robotic seal, PARO (Fig. 1), has been used as a promising alternative to animal-assisted therapies for residents with dementia in long-term care. Initial small RCTs showed positive effects on measures of anxiety and stress [15], usage of psychotropic and pain medication [15,16], agitation, depression, quality of life, social interaction and engagement [17], and loneliness [18]. … We chose this intervention length, and session frequency and duration based on our pilot work [26], and conducted all sessions during afternoon hours when agitation levels are considered to be usually highest [27]. Each session was conducted wherever the participant was at the time (except when in the bathroom), and began with a trained RA handing the PARO to the participant and

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
		repeating a standard introductory script [described in 22]. Participants were left alone with PARO for 15 min to interact with it as they liked, after which the RA returned to end the session and collect PARO. Comment: Additional information about intervention arms in reference 26 and 22, study protocol (paragraph: Rationale for the proposed trial). Detailed information about training of facilitators and information for staff is lacking.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Quote: We chose this intervention length, and session frequency and duration based on our pilot work [26], and conducted all sessions during afternoon hours when agitation levels are considered to be usually highest [27]. Each session was conducted wherever the participant was at the time (except when in the bathroom), and began with a trained RA handing the PARO to the participant and repeating a standard introductory script [described in 22]. Participants were left alone with PARO for 15 min to interact with it as they liked, after which the RA returned to end the session and collect PARO. Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Comment: No information available.
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	Y	Comment: See reference 26.
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	N	Quote: However, it is not always appropriate for animals to visit LTC facilities (eg, health and safety concerns, residents with a known dislike/fear of animals, and practical issues of looking after an animal), and researchers have sought to investigate how robotic pets may be used instead. … Participants allocated to the plush toy intervention group received identical sessions to the PARO group described, but were given PARO with all artificial intelligence disabled. Participants allocated to the usual care group received care as standard at each facility (i.e., unchanged and what they would usually receive at the facility, including involvement in activities provided by the facility). Comment: No description of reasons for the selection of the control group.
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	Y	Quote: Each session was conducted wherever the participant was at the time (except when in the bathroom), and began with a trained RA handing the PARO to the participant and repeating a standard introductory script [described in 22].
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	N	Comment: No clear description of training content and material of RAs. Not clear whether training was based on training in the pilot study (see reference 26).
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	N	Comment: No study protocol available.
Description of a process evaluation and its underlying theoretical basis	Y	Comment: A comparative cost analysis was undertaken and described elsewhere (see DOI: 10.1016/j.jamda.2017.10.008).

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Minimum required information: A process evaluation and its underlying theoretical basis needed to be described		
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	N	Comment: A process evaluation concerning facilitators and barriers potentially influencing the delivery of the intervention is not apparent.
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	N	Comment: No information available.
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	Y	Quote: The plush toy used in this study offered marginally greater value for money than PARO in improving agitation. However, these costs are much lower than values estimated for psychosocial group activities and sensory interventions, suggesting that both a plush toy and the PARO are cost-effective psychosocial treatment options for agitation (see reference 25). Comment: There is another publication reporting cost-effectiveness in detail (see DOI: 10.1016/j.jamda.2017.10.008).
Liang et al., 2018 [3]		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information: An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described	N	Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information: All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)	N	Quote: Home setting: Separate Paros were provided for each dyad in the home environment for 6 weeks. The researchers provided verbal instructions and a written instruction manual for caregivers that provided guidelines on when and how to use Paro. The 3-page manual included a brief introduction to Paro, including where it was made, where it was used, and why it was modeled on a Canadian harp seal. The manual stated that Paro was intended to be similar to pet therapy, listed the advantages of Paro over a real animal, and described the demonstrated benefits of Paro based on research. The manual provided ideas for when Paro could be useful, for example, when the care recipient was feeling sad or lonely, distressed, or agitated. It suggested letting the relative hold and stroke Paro, talking with the relative about Paro and talking about previous pets and animals to explore memories. Finally, technical guidance was highlighted, including cleaning and charging, how to interact with Paro through the touch sensors on the body, altering its posture, exposure to light, Paro's sleep function, safety, and troubleshooting. These technical instructions were based on the instruction manual provided with the robot on purchase. Overall, it was emphasized that the caregivers and care recipients should use Paro in a personalized manner. Therefore, the length and nature of interactions with Paro at home was flexible and depended on each dyad's needs and preferences. Comment: There is no information about training of facilitators and/or information for staff in day care centers.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Quote: The manual provided ideas for when Paro could be useful, for example, when the care recipient was feeling sad or lonely, distressed, or agitated. It suggested letting the relative hold and stroke Paro, talking with the relative about Paro and talking about previous pets and animals to explore memories. … Sessions were run in a separate room with 3 to 6 attendees following an unstructured format to allow flexible interactions. In each session, the researchers introduced Paro and then passed Paro around so each person could interact with it. Paro was given to each participant for up to 5 minutes before they were encouraged to pass it on to the next person. The researchers demonstrated interactions with Paro, such as stroking Paro's flippers, to encourage care recipient interactions.

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
		Comment: Not all intended interactions between different components are described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	Y	Quote: The study was conducted across 2 Selwyn Foundation dementia day care centers in Auckland, New Zealand. All attendees have a formal diagnosis of dementia, referred by the District Health Board's Needs Assessment and Coordination Services. The day care centers run between 10am-3pm from Monday to Friday. The centers provide meals and run a range of activities, including bingo, quizzes and physical exercises. Comment: No detailed information available.
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	Y	Comment: This is a pilot study.
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	NA	Quote: Controls received standard care (see "Control Activities" later). ... The control group participated in standard activities run by staff at the day care centers. A range of activities were scheduled each day, including quizzes, exercise, bingo, music, and word activities. In the home setting, care recipients received treatment as usual from their caregivers. Comment: Data extraction is not applicable for this item but was due to assess the description of the control group.
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	NA	
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	NA	
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	NA	
Description of a process evaluation and its underlying theoretical basis Minimum required information: A process evaluation and its underlying theoretical basis needed to be described	NA	
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	NA	

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	NA	
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	N	Comment: No information available.
Moyle et al., 2017 [4]		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information: An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described	N	Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information: All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)	N	Quote: Participants from facilities allocated to the PARO intervention group received an individual, non-facilitated, 15-minute session with PARO 3 times per week (Monday, Wednesday, and Friday) for 10 weeks. This duration and frequency of sessions was chosen based on findings from our pilot work.15 A trained RA gave the PARO to the participant at the start of each session, repeating the same introductory script each time (described elsewhere22). … 3 groups enabled PARO to be comparatively assessed against an identical, nonrobotic plush toy and usual care; and the delivery of the interventions in individual, nonfacilitated sessions allowed the unique effect to be evaluated, independent of any extraneous effects of group or facilitator-led sessions. … Quote: RAs receive at least 5 h of training specific to the intervention (see reference 22). Comment: Additional information about intervention arms in reference 15 and 22, study protocol (paragraph: Rationale for the proposed trial). Detailed information about training of facilitators and information for staff is lacking.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Quote: Quote: RAs receive at least 5 h of training specific to the intervention (see reference 22). Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Comment: No information available.
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	Y	Comment: See reference 15.
Third stage – Evaluation		

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	N	Comment: Description of control group given in another study publication [2]. No description of reasons for the selection of the control group.
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	Y	Quote: Trained RA gave the PARO to the participant at the start of each session, repeating the same introductory script each time (described elsewhere22).
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	N	Quote: RAs receive at least 5 h of training specific to the intervention (see reference 22). Comment: No description of content of training and training material of RAs.
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	N	Quote: On average, participants in the PARO group received the intervention 25.8 times out of a possible 30 (95% CI: 24.7-27.0), plush toy 24.1 times (95% CI: 22.7-25.5), and usual care were recorded 29.3 times (95% CI: 28.6-29.9). Comment: No study protocol available.
Description of a process evaluation and its underlying theoretical basis Minimum required information: A process evaluation and its underlying theoretical basis needed to be described	Y	Comment: A comparative cost analysis was undertaken and described elsewhere (see DOI: 10.1016/j.jamda.2017.10.008).
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	N	Comment: A process evaluation concerning facilitators and barriers potentially influencing the delivery of the intervention is not apparent.
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	N	Comment: No changes of external conditions were reported.
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	Y	Quote: The plush toy used in this study offered marginally greater value for money than PARO in improving agitation. However, these costs are much lower than values estimated for psychosocial group activities and sensory interventions, suggesting that both a plush toy and the PARO are cost-effective psychosocial treatment options for agitation (DOI: 10.1016/j.jamda.2017.10.008). Comment: There is another publication reporting cost-effectiveness in detail (see DOI: 10.1016/j.jamda.2017.10.008).
Petersen et al., 2017 [5]		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information:	N	Quote: Consequently, robotic pet therapy is seen as a viable substitute for animal therapy. The PARO (short for "personal robot" in the Japanese language) Robotic Pet has been in use in many countries since 2003. The FDA-approved device is designed to look like a baby harp seal, which is a non-familiar animal to most people. …

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described		PARO promotes the therapeutic results of psychological, physiological, and social effort from those who interact with it, lowering stress, improving depression, and reducing anxiety in many cases [5, 6]. Accurate data was needed regarding the effectiveness of robotic pet therapy. Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking..
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information: All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)	N	Quote: Education was provided for the facility nurses and staff regarding the purpose of the study and the protocols for data collection. Comment: Detailed description of information and education for staff is lacking.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Quote: Education was provided for the facility nurses and staff regarding the purpose of the study and the protocols for data collection. … The PI and the trained facility nurses conducted the sessions with the PARO robotic pets in the activity room of the assisted living memory care units. The 20-minute sessions involved seating 6 residents at a round table, placing the PARO robotic pet in the center of the table, and encouraging the residents to interact with the robotic pet by demonstrating interaction Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Comment: No information available.
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	N	Comment: No information about a pilot-test.
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	N	Quote: The interventional group received treatment with the PARO robotic pet three times a week for 20 minutes, and the control group received the standard of care, which includes music, physical activity, and mental stimulation in 20-minute segments. Comment: No description of reasons for the selection of the control group.
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	Y	Quote: Experimental group participants were exposed to treatment with the PARO robotic pet once a day for three days a week. Each session lasted 20 minutes and sessions continued for three months. The PI and the trained facility nurses conducted the sessions with the PARO robotic pets in the activity room of the assisted living memory care units. The 20-minute sessions involved seating 6 residents at a round table, placing the PARO robotic pet in the center of the table, and encouraging the residents to interact with the robotic pet by demonstrating interaction.
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	N	Quote: Facility letters of support were also obtained. Education was provided for the facility nurses and staff regarding the purpose of the study and the protocols for data collection. Comment: No details about training and training material for staff and nurses.
Description of fidelity of the delivery process compared to the study protocol	N	Comment: No study protocol available.

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)		
Description of a process evaluation and its underlying theoretical basis Minimum required information: A process evaluation and its underlying theoretical basis needed to be described	N	Comment: No information available.
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	N	Comment: No information available.
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	N	Comment: No information available.
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	N	Quote: Implications for practice for providers working with this population include: 1) the average individual in the senior living environment consumes on average 16 to 28 medications per day at an average cost of 1200 to 1500 U.S. dollars per month [14]; and, 2) intervention with the PARO robotic pet three times weekly for 20 minutes significantly reduced the need for these medications. Comment: No detailed information available.
Rouaix et al., 2017 [6]		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information: An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described	N	Quote: In their analysis of main challenges of socially assistive robotics, Tapus et al. (2007) explained how giving an empathetic attitude to an assistive robot would benefit HRI. Considering that empathy, the capacity of understanding other's emotions and perspectives, is as a key factor for successful therapeutic relationships, it has been recommended that RAT integrates this aspect. Tisseron et al. (2015) have also suggested that the acceptance of social robots depends on their empathic qualities. These authors proposed a model of empathy extended to four dimensions (i.e., auto-empathy, direct empathy, reciprocal empathy, and intersubjective empathy) and to four components (action, emotion, thought, and assistance) aiming at better understanding HRI. … Effort was put on giving the robot an empathic and a positive attitude (e.g., being warm, polite, supportive, tolerant, gracious...). Some empathy signs, such as (a) the ability to recognize other person's emotions; (b) to communicate with persons; (c) to display emotions; and (d) to take perspective (Tapus et al., 2007), were considered when defining the robot's behavior and personality. Three other principles proposed in the field of HRI were also used in this process: (a) interactivity, the robot coexists with an interactive person in the same timespace continuum; (b) equifinality, the robot is able to adapt to each person and the same objective may be reached in different ways; and (c) multimodality, the robot is able to interact with a human using different communication channels (e.g., verbal, tactile, kinesthetic, or emotional) (Libin and Libin, 2004). Table 2 presents a summary of robot's behaviors and personality traits related to the aforementioned dimensions that were implemented in this work. Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention characteristics and its containing components is lacking.
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information:	N	Quote: The main objective of the present study is to investigate the feasibility of using a humanoid robot as an assistant in psychomotor therapy for PwD. The robot's potential to incite the engagement of PwD in the activity and its effect on their emotional state will also be studied. …

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)		A psychomotor therapist conceived a short therapeutic program for PwD structured in four individual sessions: a classic therapy (CT) session, in which the patient was alone with the therapist, and three RAT sessions, in which the therapist was assisted by the robot NAO. Each session comprised five sections described as follows. … Different scenarios were created in order to anticipate possible interaction sequences involving the patient, the therapist and the robot. Comment: Detailed information about training of facilitators and information for staff is lacking.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Quote: Different scenarios were created in order to anticipate possible interaction sequences involving the patient, the therapist and the robot. Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Comment: No information available.
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	Y	Comment: This is a pilot study.
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	NA	
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	NA	
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	NA	
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	NA	
Description of a process evaluation and its underlying theoretical basis Minimum required information:	NA	

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
A process evaluation and its underlying theoretical basis needed to be described		
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	NA	
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	NA	
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	N	Comment: No information available.
Jøranson et al., 2016 [7]		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information: An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described	N	Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information: All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)	N	Quote: The baby seal Paro is developed for PwD. It has a swivelling head, legs and tail and speakers that make the authentic sounds of a real baby harp seal. It is a sophisticated and adaptive robot with artificial intelligence software (Wada et al. 2004a). … Trained nurses from each unit connected to the project participated in a 3-hour mandatory Paro course on conducting the sessions ahead of the intervention. … In each NH, the maximum of six participants were recruited forming a Paro group to attend the sessions. The intervention was in addition to regular NH activities and a group session of 30 minutes was expected to be suitable with respect to PwD's ability to maintain concentration during an activity. Paro was distributed to participants' laps for an equal period of time, preferably during two rounds to reduce waiting time. Sessions involved activities naturally occurring between participants and Paro and between participants. Comment: Detailed description of information and education for staff is lacking.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Quote: Trained nurses from each unit connected to the project participated in a 3-hour mandatory Paro course on conducting the sessions ahead of the intervention. They were supervised by the same project member post sessions during the first 2 weeks, with the aim of making the sessions as similar as possible for the sake of comparison. … In each NH, the maximum of six participants were recruited forming a Paro group to attend the sessions. The intervention was in addition to regular NH activities and a group session of 30 minutes was expected to be suitable with respect to PwD's ability to maintain concentration during an activity. Paro was distributed to participants' laps for an equal period of time, preferably during two rounds to reduce waiting time. Sessions involved activities naturally occurring between participants and Paro and between participants. Comment: Intended interactions between intervention components are not described.

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Comment: No information available.
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	N	Comment: No information about pilot study.
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	N	Quote: The control group received treatment as usual. Comment: No detailed description of the control group and no reasons for the selection of the control group.
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	Y	Quote: All the participants had regular seats during the session to secure predictability. Participants sat close together on chairs in a semi-circle facing the nurse, who conducted the sessions. Paro was distributed to participants' laps for an equal period of time, preferably during two rounds to reduce waiting time. Sessions involved activities naturally occurring between participants and Paro and between participants.
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	N	Quote: Trained nurses from each unit connected to the project participated in a 3-hour mandatory Paro course on conducting the sessions ahead of the intervention. They were supervised by the same project member post sessions during the first 2 weeks, with the aim of making the sessions as similar as possible for the sake of comparison. For further detailed descriptions, see our published article (Joranson et al. 2015). … The nurses connected to the project recruited participants by providing oral and written information specially adapted for this patient group. They also assessed residents' capacity to provide informed consent for participation. Participants gave nurses oral consent and next-of-kin provided written informed consent. Comment: No details about training material.
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	N	Quote: 52% of the participants attended 22-24 sessions, while 22% attended 20-21 sessions and 26% attended 10-19 sessions. … The sessions were conducted in a quiet, separate room in each NH in accordance with our protocol. Comment: No study protocol available.
Description of a process evaluation and its underlying theoretical basis Minimum required information: A process evaluation and its underlying theoretical basis needed to be described	N	Comment: No information available.
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	N	Comment: No information available.

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	N	Comment: No information available.
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	N	Comment: No information available.
Kuwamura et al., 2016 [8]		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information: An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described	N	Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information: All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)	N	Quote: By using Telenoid, seniors living alone or in nursing homes will have more opportunities to communicate with their family or volunteers. The small and soft body of Telenoid allows people to hold it while having conversation through it, allowing one to have communication with multiple modalities including visual and tactile sensations besides dialogue. Moreover, Telenoid's child-like appearance might attract residents and motivates them to communicate. If Telenoid can motivate residents to communicate, they will become more active or emotional, and caregivers will be able to understand their physical and mental conditions easier. … Telenoid has six independent actuators (jaw movement, yaw, pitch, and roll movement for its neck and horizontal movements for each arm) that allow it to synchronize motion with the speaker. The speaker's head motion is captured by sensors (threeaxis accelerometer and three-axis magnetometer) embedded in a headset and transmitted to the robot. Speech-driven lip motion generation, which creates lip motions from the speaker's vocal information, is used to control Telenoid's jaw movement (Ishi et al., 2011). Comment: A specific training for person delivering the intervention is not described.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Comment: No information available
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	Y	Comment: Due to the number of participants, this seems to be a pilot study.

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	NA	
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	NA	
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	NA	
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	NA	
Description of a process evaluation and its underlying theoretical basis Minimum required information: A process evaluation and its underlying theoretical basis needed to be described	NA	
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	NA	
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	NA	
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	N	Comment: No information available.
Moyle et al., 2016 [9]		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information:	N	Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described		
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information: All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)	N	Quote: The process of giving and removing CuDDler to and from each participant was standardised and guided by a protocol that is outlined below. Comment: A specific training for person who deliver the intervention is not described.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Comment: No information available
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	Y	Comment: This is a pilot study.
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	NA	
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	NA	
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	NA	
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	NA	
Description of a process evaluation and its underlying theoretical basis Minimum required information:	NA	

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
A process evaluation and its underlying theoretical basis needed to be described		
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	NA	
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	NA	
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	N	Comment: No information available.
Bemelmans et al., 2015 [10]		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information: An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described	N	Quote: In this study, the embedding of robot innovations in daily care practice is studied. Together with care professionals, specific psychogeriatric care applications were developed for Paro. … This study aims at evaluating the outcomes of 2 of the previously developed Paro interventions,8 applying the robot in psychogeriatric care (Figure 1). … This study aimed at the development of interventions involving the robot baby seal Paro. Inspired by Paro's intuitive appeal, four care institutions combined their resources and requested a structured development of Paro interventions to ensure the effective future application of the robot (see DOI 10.1024/1662-9647/a000087). … Social robots are more and more coming to be seen as having great potential for long-term care. However, the actual application of social robots in the provision of daily care depends on demonstrated added value of such systems. The availability of a technical system as such is insufficient for achieving added value. Rather, care interventions need to be defined in terms of the goal, target group, environment, and how care staff should act to pursue effective application of a robot system. For the seal robot Paro three such interventions have been developed in collaboration with psychogeriatric care professionals. These interventions also outline the application of Paro in care for a subsequent effectiveness study (see DOI 10.1024/1662-9647/a000087). … Application of Paro cannot be a goal in itself. Rather, the development of interventions involving Paro must be based on the potential Paro has to add value to existing care. For this reason, the development was based on the expertise of the staff of four care-providing organizations. Sevagram, located in Heerlen, has in total of2500 employees, Proteion employs 1400 care professionals, Dignis (part of the Lentis group) employs 4500 care professionals, and Meander has 2200 employees. All four ofthem offer both intramural and extramural elderly care, including psychogeriatric care and somatic care. In collaboration with the four organizations, a total of 12 meetings were organized with care staff, three in each organization (see DOI 10.1024/1662-9647/a000087). Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information:	N	Quote: In the first and third phases (ie, A phases), the participants received usual care and were measured 5 times, based on the IPPA score and the mood scale, at moments corresponding to the intervention goals. In the second and fourth phases (ie, B phases) the participants received the Paro interventions 5 times, also at moments corresponding to the intervention goals. …

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)		Training of Care Staff: The first step in the study was a kickoff meeting at each participating care organization to inform legal representatives, family members, care providers, and team managers about the aim and procedure of the study. After the kickoff meeting, the local care providers participated in a 2-week training course, introducing Paro, the intervention protocols, and its goals. … The first step in the study was a kickoff meeting at each participating care organization to inform legal representatives, family members, care providers, and team managers about the aim and procedure of the study. After the kickoff meeting, the local care providers participated in a 2-week training course, introducing Paro, the intervention protocols, and its goals … Each of the 2 interventions was described by a protocol that nurses should follow, wherein the course of the intervention was described in simple steps. This protocol was to be used in the context of the specified goals defined for the particular participant. At the onset of the targeted behavior (therapeutic application), or at the start of the care support activity, Paro was introduced by the care provider similar to the following text: "Look Mrs/Mr X, this is the seal Paro. He will sit with you for a while. You can stroke, cuddle, or talk to him if you like. He can sit on your lap or stay on the table." During the activity, Paro stayed on a table (or on the participant's lap), so that the participant could interact with it. Paro tries to stimulate interaction and attracting attention from the participant by making noise, moving its flippers and looking at the participant. When being stroked it gives the impression ofbeing enjoyed, thus reinforcing the interaction. The care provider was active in reminding the participant of the presence of Paro if necessary, and stimulated interaction between the participant and Paro. At the end of the activity (after approximately 15 minutes) the session was ended smoothly by saying goodbye to Paro. The caregiver said, for example, "Paro, until next time. Would you also like to say something to Paro Mrs/Mr X?" Immediately after the intervention, the care provider filled in the registration forms (ie, IPPA and mood scale) and Paro was then stored at a predefined location. … Because of the highly individual character of the interventions, a comparison against a control group provided with a placebo or "therapy as usual" was discarded. The use of a placebo tool only gives insight into the differences between the intervention group and the specific placebo group, generalizing these differences has no grounding. Comment: No details about training material.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Comment: No information available.
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	Y	Comment: See DOI /10.1016/j.apnr.2015.07.003 (pilot study) and DOI 10.1024/1662-9647/a000087 (intervention development).
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	N	Quote: In the first and third phases (ie, A phases), the participants received usual care. … Because of the highly individual character of the interventions, a comparison against a control group provided with a placebo or "therapy as usual" was discarded. The use of a placebo tool only gives insight into the differences between the intervention group and the specific placebo group, generalizing these differences has no grounding. Comment: No detailed description of the control group (A phase).

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	Y	Quote: Each of the 2 interventions was described by a protocol that nurses should follow, wherein the course of the intervention was described in simple steps. This protocol was to be used in the context of the specified goals defined for the particular participant. At the onset of the targeted behavior (therapeutic application), or at the start of the care support activity, Paro was introduced by the care provider similar to the following text: "Look Mrs/Mr X, this is the seal Paro. He will sit with you for a while. You can stroke, cuddle, or talk to him if you like. He can sit on your lap or stay on the table." During the activity, Paro stayed on a table (or on the participant's lap), so that the participant could interact with it. Paro tries to stimulate interaction and attracting attention from the participant by making noise, moving its flippers and looking at the participant. When being stroked it gives the impression ofbeing enjoyed, thus reinforcing the interaction. The care provider was active in reminding the participant of the presence of Paro if necessary, and stimulated interaction between the participant and Paro. At the end of the activity (after approximately 15 minutes) the session was ended smoothly by saying goodbye to Paro. The caregiver said, for example, "Paro, until next time. Would you also like to say something to Paro Mrs/Mr X?" Immediately after the intervention, the care provider filled in the registration forms (ie, IPPA and mood scale) and Paro was then stored at a predefined location.
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	N	Comment: No details about training material.
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	N	Comment: No study protocol available.
Description of a process evaluation and its underlying theoretical basis Minimum required information: A process evaluation and its underlying theoretical basis needed to be described	N	Comment: No information about a formal process evaluation.
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	N	Comment: No information about a formal process evaluation.
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	Y	Quote: Interviews with the caregivers involved give rise to the assumption that the use of Paro in care-support interventions at first is experienced as an additional load on the caregivers. However, as the health care providers gain more experience in the use of Paro, in the context of care support, it seems to have a more positive effect. … Caregivers also noted that attention should be paid to hygiene if the robot is to be used by multiple residents, and that in terms of practical use, storage of the robot and charging of the battery needs to be well organized and structured. We recorded some interviews with caregivers and family members on video, this video (https://www.youtube.com/watch?v¼QvRAMAmOFGk&feature) gives a nice impression of the field experiences with Paro interventions.
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	N	Comment: No information available.
Gustafsson et al., 2015 [11]		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information:	N	Quote: Currently, no treatment exists to cure dementia. Therefore, alternative forms of care are emphasized as the focus in research, aiming to improve the well-being of individuals affected in various ways by the disease (e.g., individuals with dementia, family members/relatives, professional caregivers) (Swedish Agency for Health Technology Assessment and Assessment of Social Services [SBU], 2006). The principal goals of dementia care are the optimization of physical health, cognition, activity,

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described		and well-being, as well as the detection and treatment of BPSD (SBU, 2006; WHO, 2012). Many individuals need innovative solutions in dementia care (Cesta et al., 2011; Huschilt & Clune, 2012; SBU, 2006; Shibata, Wada, Ikeda, & Sabanovic, 2009). Alternative forms of care, such as art, music, dance, singing, massage, and pets, are advocated. Research has shown that art and music (Gerdner & Swanson, 1993; Sung, Chang, & Lee, 2010) facilitate health and stimulate feelings of individuals with dementia. Spending time with a pet is seen as valuable (Friedmann, Katcher, & Thomas, 1980; Libin & Cohen-Mansfield, 2004; Sellers, 2006) and the reason for this positive effect on humans has been discussed. … Two major theories have been proposed. The first theory is the biophilia hypothesis (Wilson, 1984), which relates to humans being naturally drawn to animals and other living species, and is explained in evolutionary terms as entailing a greater possibility of surviving danger. The second theory is the social support hypothesis (Beck & Katcher, 2003), which proposes that animals give their owners social support and mediate between owners and others. However, there can be obstacles to using pets in care (i.e., animal-assisted interventions). … Based on these issues and the results of various studies, the use of robotic pets has been suggested. … A continued need to develop protocols for the enhanced use of such robots has been emphasized (Roger et al., 2012) and further studies are being conducted to develop robot pet technology (Bernabei et al., 2013). … Health and social welfare technology innovations aimed at supporting and offering alternative care and treatment for improvements in health or social care should be scrutinized to prove their impact. This approach is even more relevant when new care and treatments are developed for vulnerable populations, such as individuals with dementia. The aims of the current pilot study were to explore the reactions of individuals with dementia to an interactive robotic cat and their relatives' and professional caregivers' experiences regarding its usability, function, and effects. … JustoCat® (Figure 2) is an interactive robotic pet developed using reminiscence therapy as a framework (Woods, Spector, Jones, Orrell, & Davies, 2005); it is the result of considering the promising outcomes of the robotic seal, PARO (Mordoch et al., 2013; Moyle et al., 2013; Wada et al., 2004). Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information: All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)	N	Quote: JustoCat® (Figure 2) is an interactive robotic pet developed using reminiscence therapy as a framework (Woods, Spector, Jones, Orrell, & Davies, 2005); it is the result of considering the promising outcomes of the robotic seal, PARO (Mordoch et al., 2013; Moyle et al., 2013; Wada et al., 2004). However, the inventors of JustoCat assumed that a seal would not appeal in reminiscence therapy (Woods et al., 2005), as few individuals in Sweden have memories related to seals. In Sweden, cats are a common domestic pet (Central Bureau of Statistics, 2006); therefore, a robotic cat was assumed to appeal to individuals' memories of cats. There was also the idea of downscaled, advanced technology based on the hypothesis of a robotic cat's functional reliability and lower cost. The construction of JustoCat (e.g., easy-to-change fur facilitating personalized use, washable fur) was developed following Swedish hygiene routines required in nursing homes and hospital settings (Vårdhandboken, 2013). … The professional caregivers were instructed and supervised by the specially trained occupational therapist to be sensitive to the participants and not force the introduction and training. Comment: No details available about the instruction of caregivers.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Quote: However, the inventors of JustoCat assumed that a seal would not appeal in reminiscence therapy (Woods et al., 2005), as few individuals in Sweden have memories related to seals. In Sweden, cats are a common domestic pet (Central Bureau of Statistics, 2006); therefore, a robotic cat was assumed to appeal to individuals' memories of cats. There was also the idea of downscaled, advanced technology based on the hypothesis of a robotic cat's functional reliability and lower cost. The construction of JustoCat (e.g., easy-to-change fur facilitating personalized use, washable fur) was developed following Swedish hygiene routines required in nursing homes and hospital settings (Vårdhandboken, 2013).

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
		Comment: No detailed information available.
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	Y	Comment: This is a pilot study.
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	NA	
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	NA	
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	NA	
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	NA	
Description of a process evaluation and its underlying theoretical basis Minimum required information: A process evaluation and its underlying theoretical basis needed to be described	NA	
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	NA	
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	NA	
Description of costs or required resources for the delivery of the intervention Minimum required information:	N	Comment: No information available.

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)		
Jøranson et al., 2015 [12]		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information: An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described	N	Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information: All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)	N	Quote: Staff members from each unit participated in a mandatory Paro training course before the intervention period. … The baby seal Paro is developed for PwD. It has a swivelling head, legs and tail and speakers that make the authentic sounds of a real baby harp seal. It is a sophisticated and adaptive robot with artificial intelligence software (Wada et al. 2004a). Paro can recognize voices and respond to repeated words. Sensors in the artificial fur create interactivity between users and the robot as it responds to the user's repetitive motions, such as stroking. … In each NH, the maximum of six participants were recruited forming a Paro group to attend the sessions. Comment: Detailed information about training for staff is lacking.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Quote: Staff members from each unit participated in a mandatory Paro training course before the intervention period. Activity sessions were led by one of the trained NH staff, who was supervised post sessions during the first 2 weeks by one member of the project group, aiming to make sessions in all intervention units as similar as possible for the sake of comparison. Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Quote: The intervention was in addition to regular NH activities and a group session of 30 minutes was expected to be suitable with respect to PwD's ability to maintain concentration during an activity (Engedal & Haugen 2009) (see DOI 10.1111/jan.13076). Comment: No information available.
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	N	Comment: No information about pilot study.
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	N	Quote: The control group received treatment as usual. Comment: No detailed description of the control group and no reasons for the selection of the control group.
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	Y	Quote: The project group developed a protocol for the Paro program. The protocol states that sessions are to take place in a separate, quiet room, that all participants sit close together in a half circle without a table in front of them, and that they all sit in their usual seats. During sessions, the activity leader should sit in front of the group. Each session started with a presentation of Paro as an articulated toy to reduce misinterpretations.
Description of all materials or tools used for the delivery of the intervention	N	Quote: Paro has the size of a baby harp seal with a swiveling head, moving legs and tail, and microphones that make the authentic sounds of a real baby harp seal. Paro is a highly advanced, adaptive robot with artificial intelligence software.27 It recognizes

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)		voices and can respond to repeated words. Its artificial fur contains 12 sensors, creating interactivity between users and the robot as it responds to the user's repetitive motions, such as stroking. … Trained nurses from each unit connected to the project participated in a 3-hour mandatory Paro course on conducting the sessions ahead of the intervention. They were supervised by the same project member post sessions during the first 2 weeks, with the aim of making the sessions as similar as possible for the sake of comparison. For further detailed descriptions, see our published article (Joranson et al. 2015) (see DOI 10.1111/jan.13076). … The nurses connected to the project recruited participants by providing oral and written information specially adapted for this patient group. They also assessed residents' capacity to provide informed consent for participation. Participants gave nurses oral consent and next-of-kin provided written informed consent (see DOI 10.1111/jan.13076). … Staff members from each unit participated in a mandatory Paro training course before the intervention period. Activity sessions were led by one of the trained NH staff, who was supervised post sessions during the first 2 weeks by one member of the project group, aiming to make sessions in all intervention units as similar as possible for the sake of comparison. Comment: No details about training material.
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	N	Quote: 52% of the participants attended 22-24 sessions, while 22% attended 20-21 sessions and 26% attended 10-19 sessions (see DOI 10.1111/jan.13076). … The protocol states that sessions are to take place in a separate, quiet room, that all participants sit close together in a half circle without a table in front of them, and that they all sit in their usual seats. Comment: No study protocol available.
Description of a process evaluation and its underlying theoretical basis Minimum required information: A process evaluation and its underlying theoretical basis needed to be described	N	Comment: No information available.
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	N	Comment: No information available.
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	N	Comment: No information available.
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	N	Comment: No information available.
Valenti Soler et al., 2015 [13]: Nursing home		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information:	N	Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described		
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information: All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)	N	Quote: They received instructions on the implementation and possible uses of robots and animals as they had no previous expertise in this area. … All patients, families and legal guardians received written information and informational meetings were organized. Comment: No details about informational meetings and information material.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Comment: No information available
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	Y	Comment: This is a pilot study.
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	NA	Quote: Conventional therapy. … The therapists used the same model of standard therapy, introducing the experimental tools as one more element of the therapy. ... Otherwise, the tools used in the control group were the same as in the other two groups. Comment: Data extraction is not applicable for this item but was due to assess the description of the control group.
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	NA	
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	NA	
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	NA	
Description of a process evaluation and its underlying theoretical basis	NA	

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Minimum required information: A process evaluation and its underlying theoretical basis needed to be described		
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	NA	
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	NA	
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	N	Comment: No information available.
Valenti Soler et al., 2015 [13]: Day care center		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information: An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described	N	Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information: All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)	N	Quote: They received instructions on the implementation and possible uses of robots and animals as they had no previous expertise in this area. … All patients, families and legal guardians received written information and informational meetings were organized. Comment: No details about informational meetings and information material.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Quote: Sessions with four levels of difficulty were designed. Comment: No detailed information on meso level available.
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information:	Y	Comment: This is a pilot study.

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described		
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	NA	
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	NA	
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	NA	
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	NA	
Description of a process evaluation and its underlying theoretical basis Minimum required information: A process evaluation and its underlying theoretical basis needed to be described	NA	
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	NA	
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	NA	
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	N	Comment: No information available.
Moyle et al., 2013 [14]		
First stage - Development		

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Description of the intervention's underlying theoretical basis Minimum required information: An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described	N	Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information: All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)	Y	Quote: PARO, invented by Takanori Shibata, a researcher at Japan's National Institute of Advanced Industrial Science and Technology, is a therapeutic, pet-type robot with the appearance of a baby harp seal (Figure). It has tactile sensors and moves its tail and flippers and opens its eyes when petted. Artificial intelligence software changes the robot's behavior based on a host of sensors that monitor sound, light, temperature, and touch. It responds to sounds, can learn its name, and learns to respond to words its owner uses frequently. It can show emotions such as surprise, happiness, and anger, and will cry if it is not receiving sufficient attention. It produces sounds similar to a real baby seal and is active during the day and sleeps at night. … The PARO intervention involved activities around the concepts of discovery, engaging an emotional response, social interaction in the group through discussion about PARO, and touching PARO. Discovery encouraged participants to examine PARO while being passed around the group. Individuals were asked if they would like to get to know PARO. To help engage an emotional response, the facilitator showed PARO to each individual and demonstrated how PARO facilitator held PARO close to participants' faces and stated, "Hello, XX. If we talk to Millie (name of PARO), she will listen and respond. Let's see what happens when you speak to Millie." Social interaction encouraged residents to discuss PARO within the group. The facilitator encouraged discussion through set questions such as, "What does everyone think of PARO?", "Who used to have a pet?", and "How does Millie compare to your pet?" Participants were encouraged to touch PARO and to talk about how the fur felt and other opportunities such as looking at and describing PARO's eyes and eyelashes. … Two members of the research team (W.M., C.J.) using a protocol manual that outlined content of each session, divided into four key areas, trained the facilitator. Procedure, which was designed around the following areas: introduction - emotions, social interaction, and closure; Explanation - how to implement activity and the process for each of the four areas; Time - the time proposed for each of the four key areas; Equipment - equipment requirements for each session and each of the four areas.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	N	Comment: No information available.
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	Y	Comment: This is a pilot study.
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	NA	Quote: Both intervention and control activities ran for 45 minutes, three afternoons per week, for 5 weeks with groups of nine. ... Reading activities for the control group involved being read to, looking at pictures, and social interaction in the group through engaging participants in questions about the readings. Comment: Data extraction is not applicable for this item but was due to assess the description of the control group.

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	NA	
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	NA	
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	NA	
Description of a process evaluation and its underlying theoretical basis Minimum required information: A process evaluation and its underlying theoretical basis needed to be described	NA	
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)	NA	
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	NA	
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	Y	Quote: Although the findings suggest PARO could enhance the life of older people as therapeutic companions, the cost of PARO should be taken into consideration when deciding to introduce PARO into a care facility or in research. PARO cost approximately $5,027 U.S. each (http://www.japantrendshop.com/paro-robot-seal-healing-pet-p-144.html), excluding postage. Furthermore, PARO need to be returned to Japan or Denmark for repairs, and the cost of return postage and repairs, as well as time taken to repair, can limit their availability.
Sant'Anna et al., 2012 [15]		
First stage - Development		
Description of the intervention's underlying theoretical basis Minimum required information: An underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics (e.g., length, format) and its containing components (e.g., training of facilitators, staff) needed to be described	N	Comment: A description of an underpinning theoretical approach and rationale to develop the robotic intervention, its characteristics and its containing components is lacking.
Description of all intervention components, including the reasons for their selection as well as their aims/essential functions Minimum required information:	N	Quote: Les séances étaient individuelles, animées par deux intervenants (une psychologue et une stagiaire psychologue) qui se rendaient dans les chambres avec Paro. …

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
All intervention components needed to be described (e.g., robot session, training of facilitators, information for staff)		L'intervenant posait le phoque sur une table et sollicitait l'attention du patient en donnant des repères clairs sur l'identité du robot. Un temps était consacré à la libre expression et au toucher. Une séance de debriefing a eu lieu au départ du robot phoque, une semaine après la fin des huit séances. Comment: Details about training of facilitators are lacking.
Illustration of any intended interactions between different components Minimum required information: Intended interactions between intervention components needed to be described including (e.g., interactions between training and delivery)	N	Comment: Intended interactions between intervention components are not described.
Description and consideration of the context's characteristics in intervention modelling Minimum required information: Context conditions from the meso level (e.g., institutional or community-specific conditions) and the micro level (e.g., teams, individuals, or local structures) needed to be described	Y	Quote: Dans notre établissement, les patients atteints de MA sévère sont pris en charge par une équipe pluridisciplinaire au quotidien. Cette prise en charge non médicamenteuse se déroule en groupe et a pour but, d'une part, de diminuer les troubles du comportement, de stimuler les capacités cognitives, sociales et fonctionnelles des patients et, d'autre part, de diminuer la charge de travail des équipes soignantes [10]. Ce type de prise en charge est ce que nous considérons comme étant la « prise en charge classique » des troubles cognitifs et psychosociaux. Elle se base sur la sollicitation des patients dans des activités de vie quotidienne très simples, telles que participer à la distribution d'un goûter, tartiner, manger seul, etc.
Second stage - Feasibility and piloting		
Description of the pilot-test and its impact on the definite intervention Minimum required information: Description of the pilot study (e.g., acceptance, feasibility) and its impact on the definite intervention (e.g., modifications of intervention components) needed to be described	Y	Comment: This is a pilot study.
Third stage – Evaluation		
Description of the control condition (comparator) and reasons for the selection Minimum required information: The control group (e.g., characteristics of the control intervention) and reasons for the selection needed to be described	NA	
Description of the strategy for delivering the intervention within the study context Minimum required information: The planned strategy for delivering the intervention within the study context needed to be described (e.g., protocol, script)	NA	
Description of all materials or tools used for the delivery of the intervention Minimum required information: All materials used for the delivery of the intervention needed to be described (e.g., the robotic system, training/information material)	NA	
Description of fidelity of the delivery process compared to the study protocol Minimum required information: The fidelity of the delivery process compared to the study protocol needed to be described (e.g., intervention adherence, modifications)	NA	
Description of a process evaluation and its underlying theoretical basis Minimum required information: A process evaluation and its underlying theoretical basis needed to be described	NA	
Description of internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation	NA	

CReDECI 2 checklist	Y/N/NA	Quote and/or comment
Minimum required information: Internal facilitators and barriers potentially influencing the delivery of the intervention as revealed by the process evaluation needed to be described (e.g., resources, staff turnover)		
Description of external conditions or factors occurring during the study which might have influenced the delivery of the intervention and/or mode of action (i.e., how it works) Minimum required information: External conditions or factors occurring during the study which might have influenced the delivery of the intervention needed to be described (e.g., changes in clinical practice)	NA	
Description of costs or required resources for the delivery of the intervention Minimum required information: The costs for the delivery of the intervention needed to be described (e.g., personnel costs, material, equipment)	N	Comment: No information available.

Numbers in quotes are references in the original publication.
Y, yes, reported; N, no, not reported; NA, not applicable.

4.2. Detailed reporting assessment by means of TIDieR

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Demange et al., 2018 [1]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: PARO, no specific intervention name.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: Some authors hypothesized that Paro might improve well-being in older adults because it meets some of their needs – it i companionable, it has the capacity for artificial empathy, it can respond to a person's voice and touch, and it looks like an unfamilia animal.14 seems to make it more acceptable to users.15 This kind of pet robot could have promising effects such as those observed with traditional pets, without the disadvantages (eg, hygien and safety issues).16 Paro triggers with most physical interaction, eye contact, and verbal communication, like a dog.17 … There is little literature on the differential effects of social robots depending on neuropsychiatric profiles in geriatric. populations. However we were encouraged by informal observations conducted in our hospital indicating that Paro's effectiveness may depend o neuropsychiatric profiles. In fact, these observations suggested that agitated patients would benefit more from Paro than patients wit symptoms of depression or apathy. To our knowledge, this hypothesis had not been addressed yet. Thus, this research aimed to explore th differential effect of a brief interaction with Paro for 3 neuropsychiatric profiles in a pilot study. … Consistently with the research study aim (evaluating Paro robot efficacy) during the intervention, the patient only interacted with the Par robot, with the practitioner leaving the room but waiting in the next room in order to supervise the interaction. Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: Paro is an animal-like robot modeled after a baby harp seal.30 Paro is covered with white artificial fur and weighs approximately 2.7 kg. It is equipped with light, tactile, and sound-recognition sensors. Paro was designed/developed "to track human motion and pay attention to someone interacting with it."18,30,31
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Quote: In order to control implementation error, practitioners were trained to implement this 6-step predetermined protocol. Comment: The 6-step predetermined protocol is presented (a-f).
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	N	Quote: In order to control implementation error, practitioners were trained to implement this 6-step predetermined protocol. Comment: No detailed information about background, experience, and training of facilitators.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Comment: Detailed description (a-f), facilitated and individual session.
Where	Y	Quote: This quasi-experimental pilot study was conducted between January and June 2016 in a geriatric hospital in Paris. The 3 unit involved in this study admit patients for between 20 days until many years.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described		… The intervention sessions were conducted in a private room with the patient either sitting or lying on a bed.
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	Y	Quote: Each participant took part in 2 weekly sessions (15 minutes) over 2 weeks (Figure 2).
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	Y	Quote: Whenever the patient asked for help or refused to continue, the session was interrupted. No persuasive arguments were used when the participant refused. The health care providers just asked why and asked if the participant was willing to try it another day. … If the patient agreed, the health care providers placed it in his/her arms, or on a nearby chair or table if necessary. … The session was interrupted at any moment if the patient asked for help, or refused to continue, whatever the reason was. If the patient seemed disoriented or did not understand the context, the health care professional acted reassuringly and mitigated the feeling of uneasiness
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described	-	Comment: No information available.
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	Y	Quote: Whenever the patient asked for help or refused to continue, the session was interrupted. No persuasive arguments were used when the participant refused. The health care providers just asked why and asked if the participant was willing to try it another day.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	Y	Quote: Ending exposure: after 15 minutes (less when the sessions were interrupted), the health care professional asked the participant for brief feedback on how he/she experienced this time. … In terms of adherence, 88% of the participants completed at least 3 sessions out of the 4 sessions initially planned and 76% (n=15) completed all the sessions. Two patients were excluded because of adverse events after 2 therapeutic sessions. One patient suffered from an acute physical disease. Though this impeded the intervention, it seemed unrelated to the robot exposure. The second patient had nightmares on the night following the Paro session which subsided the next day. Since this might have been due to the interaction with Paro, the patient was excluded from the study to prevent further sleep disturbances.
Moyle et al., 2018 [2]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: PARO, no specific intervention name.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: BPSD can present as agitation, apathy, psychosis, and mood and sleep disturbances. One core aspect of agitation is excessive motor activity [5], which can include wandering, restlessness, rocking and repetitious mannerism. Wandering can have particularly negative consequences for the person with dementia, such as fatigue and injury [6]. Further, due to changes in sleep pattern, residents can experience hypersomnia, asleep-wake reversal, and nighttime wandering [7]. … Building on this work, and in response to calls for more rigorous RCTs in the area [19,20], we undertook a large cluster-RCT to explore the effects of PARO (version 9) compared to a plush toy (PARO with robotic features disabled), and usual facility care, on emotional and behavioural symptoms of dementia [21–23].

TIDieR checklist	Y/N/NA/-	Quote and/or comment
		… 3 groups enabled PARO to be comparatively assessed against an identical, nonrobotic plush toy and usual care; and the delivery of the interventions in individual, nonfacilitated sessions allowed the unique effect to be evaluated, independent of any extraneous effects of group or facilitator-led sessions (reference 23). Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: The therapeutic pet-type robotic seal, PARO (Fig. 1), has been used as a promising alternative to animal-assisted therapies fo residents with dementia in long-term care.
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Quote: Each session was conducted wherever the participant was at the time (except when in the bathroom), and began with a trained RA handing the PARO to the participant and repeating a standard introductory script [described in 22]. Participants were left alone with PARO for 15 min to interact with it as they liked, after which the RA returned to end the session and collect PARO. … Participants will be given the PARO and the research assistant (RA) will repeat a short script: "This is PARO. PARO is a companion animal. PARO can move. PARO will respond when you touch and stroke PARO and to your voice when you speak to PARO. Look at the reaction of PARO'S eyes. I will leave you with PARO for a short time for you to get to know PARO. I will sit over there and read my book while you have PARO." (reference 22).
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	N	Quote: RAs receive at least 5 h of training specific to the intervention (reference 22). Comment: No description of expertise, background, and training of RAs.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: Participants allocated to the PARO intervention group received individual, non-facilitated, 15-min sessions with PARO.
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described	Y	Quote: This study will be a multisite trial in 35 Australian Government approved and accredited LTC facilities of 60 or more beds in South East Queensland, Australia, within a 100 km radius of the Brisbane central business district. … All sessions will be conducted in the afternoon and in a naturalistic environment (ie, wherever the participants are located at the time of their allocated session, including bedroom, dining area or communal area) (reference 22). … Each session was conducted wherever the participant was at the time (except when in the bathroom).
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	Y	Quote: Participants allocated to the PARO intervention group received individual, non-facilitated, 15-min sessions with PARO three afternoons per week (between 13:00–17:00 Monday, Wednesday, and Friday) for 10 weeks.
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how	Y	Quote: Each session was conducted wherever the participant was at the time (except when in the bathroom), and began with a trained RA handing the PARO to the participant and repeating a standard introductory script [described in 22].

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Minimum required information: Measures to tailor the robotic session needed to be described		
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described	NA	Quote: Each session was conducted wherever the participant was at the time (except when in the bathroom), and began with a trained RA handing the PARO to the participant and repeating a standard introductory script [described in 22]. Comment: The intervention was not modified.
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	-	Comment: No information available.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	-	Comment: No information available.
Liang et al., 2018 [3]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: PARO, no specific intervention name.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: To date, there is no curative treatment available for dementia and existing medication shows modest mitigation of the symptoms whereas the side effects often do more harm than good.10 Therefore, psychosocial interventions are increasingly seen as relevant and acceptable options to address the symptoms of dementia. These options need to be suitable in a home setting and viable for family caregivers. … In light of advancements in technology, one relevant psychosocial option is companion robot therapy. … Companion robots aim to mimic the benefits of caring for a pet, while minimizing the costs and circumventing potential hygiene and safety risks.1 … Companion robot design stems from the principles of animal-assisted therapy, which has shown physiological and emotional benefits fo older individuals in residential care units, as well as reduced agitation in individuals with dementia. … The most popular companion robot used in older adult therapy is the seal robot Paro. … There is also preliminary evidence to suggest that Paro can exert physiological effects. ... Most studies to date have explored the effects of Paro in improving mood, but few studies have examined physiological variables and non have systematically examined the effects of Paro in a home setting. Addressing this gap in the literature may have important implication for providing nonpharmacologic therapeutic approaches to support the large proportion of individuals with dementia living in th community. This article describes the findings from a pilot RCT conducted to investigate the psychosocial, behavioral, and physiologica effects of Paro for people with dementia in both day care and home environments. Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention	Y	Quote: The most popular companion robot used in older adult therapy is the seal robot Paro (Figure 1). … Sixteen Paros were used in this study, one was used for sessions at day care and 15 were given to participants for use at home.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described		
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Quote: In each session, the researchers introduced Paro and then passed Paro around so each person could interact with it. Paro was given to each participant for up to 5 minutes before they were encouraged to pass it on to the next person. The researchers demonstrated interactions with Paro, such as stroking Paro's flippers, to encourage care recipient interactions. … Home setting: Overall, it was emphasized that the caregivers and care recipients should use Paro in a personalized manner. Therefore, the length and nature of interactions with Paro at home was flexible and depended on each dyad's needs and preferences.
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	N	Quote: Home setting: Separate Paros were provided for each dyad in the home environment for 6 weeks. The researchers provided verbal instructions and a written instruction manual for caregivers that provided guidelines on when and how to use Paro. The 3-page manual included a brief introduction to Paro, including where it was made, where it was used, and why it was modeled on a Canadian harp seal. The manual stated that Paro was intended to be similar to pet therapy, listed the advantages of Paro over a real animal, and described the demonstrated benefits of Paro based on research. The manual provided ideas for when Paro could be useful, for example, when the care recipient was feeling sad or lonely, distressed, or agitated. It suggested letting the relative hold and stroke Paro, talking with the relative about Paro and talking about previous pets and animals to explore memories. Finally, technical guidance was highlighted, including cleaning and charging, how to interact with Paro through the touch sensors on the body, altering its posture, exposure to light, Paro's sleep function, safety, and troubleshooting. These technical instructions were based on the instruction manual provided with the robot on purchase. Overall, it was emphasized that the caregivers and care recipients should use Paro in a personalized manner. Therefore, the length and nature of interactions with Paro at home was flexible and depended on each dyad's needs and preferences. Comment: Home setting: Paro sessions were provided by relatives. Comment: No information about expertise, background, and/or training of facilitators in day care centers.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: Sessions were run in a separate room with 3 to 6 attendees following an unstructured format to allow flexible interactions. … Home setting: Overall, it was emphasized that the caregivers and care recipients should use Paro in a personalized manner. Therefore, the length and nature of interactions with Paro at home was flexible and depended on each dyad's needs and preferences.
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described	Y	Quote: The study was conducted across 2 Selwyn Foundation dementia day care centers in Auckland, New Zealand. … Sessions were run in a separate room with 3 to 6 attendees following an unstructured format to allow flexible interactions. Comment: Individual sessions were conducted in the home setting.
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	Y	Quote: Paro sessions were scheduled between 1100 and 1200 hours at both day care sites, and 2 to 3 sessions occurred each week for 6 weeks. The sessions lasted for half an hour. Home setting: Overall, it was emphasized that the caregivers and care recipients should use Paro in a personalized manner. Therefore, the length and nature of interactions with Paro at home was flexible and depended on each dyad's needs and preferences. … Home setting: Overall, it was emphasized that the caregivers and care recipients should use Paro in a personalized manner. Therefore, the length and nature of interactions with Paro at home was flexible and depended on each dyad's needs and preferences.
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	Y	Quote: Sessions were run in a separate room with 3 to 6 attendees following an unstructured format to allow flexible interactions. … Home setting: Overall, it was emphasized that the caregivers and care recipients should use Paro in a personalized manner. Therefore, the length and nature of interactions with Paro at home was flexible and depended on each dyad's needs and preferences.
Modifications	-	Comment: No information available.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described		
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	-	Comment: No information available.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	-	Comment: No information available.
Moyle et al., 2017 [4]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: PARO, no specific intervention name.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	Y	Quote: Nonpharmacologic interventions offer an alternate means of managing BPSD, and animal assisted therapies have been successfully used with older people with dementia to ameliorate such symptoms.8 However, it is not always appropriate for animals to visit LTC facilities (eg, health and safety concerns, residents with a known dislike/fear of animals, and practical issues of looking after an animal) and researchers have sought to investigate how robotic pets may be used instead. … Methodological shortcomings limit the reliability and generalizability of these findings, however, and recent editorials and reviews have highlighted the need for more rigorously designed RCTs to further current understanding.9 … The aim of this study was to test the effects of individual, nonfacilitated sessions with PARO (version 9), when compared against a look-alike plush toy and usual care, on the emotional and behavioral symptoms of dementia for people living in LTC facilities. We hypothesized that participants in the PARO group would demonstrate improvements in engagement, mood states, and agitation more so than participants in the plush toy and usual care groups. … 3 groups enabled PARO to be comparatively assessed against an identical, nonrobotic plush toy and usual care; and the delivery of the interventions in individual, nonfacilitated sessions allowed the unique effect to be evaluated, independent of any extraneous effects of group or facilitator-led session. Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: The aim of this study was to test the effects of individual, nonfacilitated sessions with PARO (version 9), when compared against a look-alike plush toy and usual care, on the emotional and behavioral symptoms of dementia for people living in LTC facilities.
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities	Y	Quote: A trained RA gave the PARO to the participant at the start of each session, repeating the same introductory script each time (described elsewhere22). RAs left the participant with the PARO to interact with it as they liked, returning after 15 minutes to collect PARO. …

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Minimum required information: Procedure to conduct the robotic session needed to be described		Participants will be given the PARO and the research assistant (RA) will repeat a short script: "This is PARO. PARO is a companion animal. PARO can move. PARO will respond when you touch and stroke PARO and to your voice when you speak to PARO. Look at the reaction of PARO'S eyes. I will leave you with PARO for a short time for you to get to know PARO. I will sit over there and read my book while you have PARO." (reference 22).
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	N	Quote: RAs receive at least 5 h of training specific to the intervention (reference 22). Comment: No description of expertise, background, and training of RAs.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: And the delivery of the interventions in individual, non-facilitated sessions allowed the unique effect to be evaluated, independent of any extraneous effects of group or facilitator-led sessions.
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described	Y	Quote: LTC facilities that provided care to residents with dementia. … All sessions were conducted during the afternoon hours of1:00 PM-5:00 PM (when agitation levels are commonly highest23) and wherever the participant was at the time of the allocated session. … All sessions will be conducted in the afternoon and in a naturalistic environment (ie, wherever the participants are located at the time of their allocated session, including bedroom, dining area or communal area) (reference 22).
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	Y	Quote: Participants from facilities allocated to the PARO intervention group received an individual, nonfacilitated, 15-minute session with PARO 3 times per week (Monday, Wednesday, and Friday) for 10 weeks. This duration and frequency of sessions was chosen based on findings from our pilot work.
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	Y	Quote: A trained RA gave the PARO to the participant at the start of each session, repeating the same introductory script each time (described elsewhere22). … Wherever the participant was at the time of the allocated session.
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described	NA	Quote: A trained RA gave the PARO to the participant at the start of each session, repeating the same introductory script each time (described elsewhere22). Comment: The intervention was not modified.
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	-	Comment: No information available.
How well	Y	Quote: On average, participants in the PARO group received the intervention 25.8 times out of a possible 30 (95% CI: 24.7-27.0), plush toy 24.1 times (95% CI: 22.7-25.5), and usual care were recorded 29.3 times (95% CI: 28.6-29.9).

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described		
Petersen et al., 2017 [5]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: PARO, no specific intervention name.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: Behavioral and psychological problems affect most individuals with dementia at some point during the progression of the disorder adding to the cost and burden of caring for them. … Despite the fact that animal assisted therapy has been used for many years, some senior healthcare settings still do not accept animals, even though they acknowledge the positive benefits of animal assisted therapy and activities involving therapy pets. Many are concerned regarding the negative effects to human beings such as allergies, infections, biting, scratching, or even fear of the animals involved in therapy [4]. Consequently, robotic pet therapy is seen as a viable substitute for animal therapy. … PARO, as a result, imitates animal behavior, but also responds to light, sound temperature, touch and posture and, over time, due to its artificial intelligence capability, develops its own "character."PAROpromotes the therapeutic results of psychological, physiological, and social effort from those who interact with it, lowering stress, improving depression, and reducing anxiety in many cases [5, 6]. Accurate data was needed regarding the effectiveness of robotic pet therapy. Therefore, the primary purpose of this study was to rigorously assess the effectiveness of PARO robotic pet therapy in treating dementia-related symptoms such as anxiety and depression. Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: Consequently, robotic pet therapy is seen as a viable substitute for animal therapy. The PARO (short for "personal robot" in the Japanese language) Robotic Pet has been in use in many countries since 2003. The FDA-approved device is designed to look like a baby harp seal, which is a non-familiar animal to most people. As a result, individuals can readily engage with PARO without preconception or expectations.
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Quote: The 20-minute sessions involved seating 6 residents at a round table, placing the PARO robotic pet in the center of the table, and encouraging the residents to interact with the robotic pet by demonstrating interaction.
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	N	Quote: The PI and the trained facility nurses conducted the sessions with the PARO robotic pets in the activity room of the assisted living memory care units. Comment: No details about the background, experience, and training of PI and nurses.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information:	Y	Quote: The 20-minute sessions involved seating 6 residents at a round table, placing the PARO robotic pet in the center of the table, and encouraging the residents to interact with the robotic pet by demonstrating interaction.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described		
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described	Y	Quote: Activity room of the assisted living memory care units.
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	Y	Quote: The interventional group received treatment with the PARO robotic pet three times a week for 20 minutes, and the control grou received the standard of care, which includes music, physical activity, and mental stimulation in 20-minute segments. … Experimental group participants were exposed to treatment with the PARO robotic pet once a day for three days a week. Each sessio lasted 20 minutes and sessions continued for three months.
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	-	Comment: No information available.
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described	-	Comment: No information available.
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	-	Comment: No information available.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	-	Comment: No information available.
Rouaix et al., 2017 [6]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: NAO, the Psychomotor Therapy Program.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: Psychosocial interventions, such as cognitive stimulation, physical activities and art-mediated therapies, play a key role in dementia care. … In recent years a growing number of studies have focused on the use of social robots in interventions for PwD. Social robots offer th possibility of engaging and stimulating the user through social interaction (speech, gestures, behavior). A wide range of robots interprete as communicative and socially aware fall under this category (Ess et al., 2014), including humanoid, animal-like and some machine-lik robots (Figure 1). Most social robots offer a great flexibility of programming allowing the creation of diverse behaviors and customization

TIDieR checklist	Y/N/NA/-	Quote and/or comment
		For this reason, they have a great potential to support care interventions taking into account inter-individual differences, a well-known success factor in dementia care. … Results from previously cited studies show that humanoid robots have the potential to provide assistance for psychosocial interventions in dementia care, particularly, when the robot's role and behavior has been defined according to the needs of care professionals and PwD. However, further work is needed to identify the elements of RAT using humanoid robots that are likely to result in clinical improvements in PwD. … The main objective of the present study is to investigate the feasibility of using a humanoid robot as an assistant in psychomotor therapy for PwD. The robot's potential to incite the engagement of PwD in the activity and its effect on their emotional state will also be studied. Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: A NAO robot, Version V4 (Softbank robotics). … The "Choregraphe" software (Softbank robotics), a multiplatform application allowing the creation ofbehaviors for the NAO robot, it monitoring and control (version 2.1). … A "home-made" software developed to create robot's behaviors, customize sessions, and monitoring and control the robot. The software i described in Section The Psychomotor Therapy Program. … "The Observer XT" software, version 11.5 (Noldus), for videobased behavioral analysis.
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Comment: The Psychomotor Therapy Program is described in detail.
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	N	Quote: The experimenter (engineer) who operated the robot was sitting back in the room with the computer which remained visible to th participant. … The intervention program consisted in 4 individual sessions of psychomotor therapy including: one classical psychomotor therapy session (CT) (therapist-patient) and 3 RAT sessions (therapist-patient-robot). Comment: Expertise and background of therapist and experimenter are not described.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: Therapy sessions were held in the patient's hospital room. The patient was seated on a chair facing the therapist, and the robot i RAT sessions. The experimenter (engineer) who operated the robot was sitting back in the room with the computer which remained visibl to the participant. The experimenter used the Wizard of Oz (WOZ) technique to remotely control the robot's movements, speech, an gestures (Kelley, 1984).
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described	Y	Quote: Therapy sessions were held in the patient's hospital room.
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information:	Y	Quote: The experimental protocol consisted of four individual non-consecutive sessions over a period of 5 weeks: one CT session and thre RAT sessions. … Table 6 presents mean duration of the sessions detailing each subsection. … The sessions had a mean duration of 22.15 min.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Frequency, duration, and length of the robotic session needed to be described		
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	Y	Quote: In order to increase RAT acceptance, particular attention will be given to the definition of some components of the RAT: defining a highly acceptable and empathic interaction style for the robot, tailoring the program contents to the preferences and capacities o participants, and creating a framework for RAT based on the triad composed by the therapist, the patient and the robot. … Different scenarios were created in order to anticipate possible interaction sequences involving the patient, the therapist and the robot. Verbal and non-verbal robot behaviors required for each sequence were carefully defined taking into account the technical possibilities of the robot (Figure 2). During this process were also identified the "personalization parameters" needed to adapt the program contents to the specific requirements of each participant.
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described	NA	Quote: All the participants underwent the four experimental sessions as stated in the protocol. Comment: The intervention was not modified.
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	Y	Comment: Described in figure 2, example of RAT interactive scenario.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	Y	Quote: All the participants underwent the four experimental sessions as stated in the protocol, except one participant who refused to tak part in the CT session. … Results indicated a high constructive engagement of participants in both CT and RAT sessions. Table 8 shows the comparison o percentages in time of the different types of engagement for CT and RAT sessions, first for the entire session (all sections included) the for each subsection. To compare the engagement percentages in both conditions (CT and RAT), the values for the three RAT sessions were averaged. … Globally, all participants were satisfied with the intervention program.
Jøranson et al., 2016 [7]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: PARO, no specific intervention name.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: The development of dementia leads to a progressive decline in cognition, increased apathy and level of functioning and people with severe dementia normally require diurnal care. … A strong association is stated between symptoms of depression and behavioural disorder in dementia and poorer quality of life (QoL). … Quality of life can broadly be defined as the subjective and objective judgement of a person's behavioural and environmental situation, a described by Lawton (1994). … One specific non-pharmacological intervention in NH includes animals and some studies report an effect on QoL after dog visits (Moretti et al. 2011, Nordgren & Engstr€om 2014). Intervention studies with robotic emotional animals are based on the experience of interacting with animals. There is still scarce knowledge about how emotional robots affect QoL (Broekens et al. 2009, Mordoch et al. 2013). … The RCT with Paro-groups by Valentı Soler et al. (2015) found no improvement on QoL. … Recently, published findings from a cluster RCT using Paro in group activity-revealed positive effects on agitation and depression in NH residents with dementia (Joranson et al. 2015). This paper presents additional analyses of effect on QoL of group activity with the sea robot Paro in NH residents and explores potential differences related to severity of dementia.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
		Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: The baby seal Paro is developed for PwD. It has a swivelling head, legs and tail and speakers that make the authentic sounds of a real baby harp seal. It is a sophisticated and adaptive robot with artificial intelligence software (Wada et al. 2004a).
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Quote: All the participants had regular seats during the session to secure predictability. Participants sat close together on chairs in a semi circle facing the nurse, who conducted the sessions. Paro was distributed to participants' laps for an equal period of time, preferably during two rounds to reduce waiting time. Sessions involved activities naturally occurring between participants and Paro and between participants
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	N	Quote: Trained nurses from each unit connected to the project participated in a 3-hour mandatory Paro course on conducting the session ahead of the intervention. Comment: No detailed information about background and expertise of nurses.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: Robot-assisted group activity. … In each NH, the maximum of six participants were recruited forming a Paro group to attend the sessions. … All the participants had regular seats during the session to secure predictability. Participants sat close together on chairs in a semi-circl facing the nurse, who conducted the sessions. Paro was distributed to participants' laps for an equal period of time, preferably during tw rounds to reduce waiting time. Sessions involved activities naturally occurring between participants and Paro and between participants.
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described	Y	Quote: Ten NH with adapted units were recruited by Centre for Development of Institutional and Home Care Services from three countie in Eastern Norway during 2012 and 2013. … The sessions were conducted in a quiet, separate room in each NH in accordance with our protocol.
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	Y	Quote: The intervention was Paro-activity conducted for 30 minutes during daytime twice a week over 12 weeks, resulting in a total of 2 sessions.
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	NA	Quote: They were supervised by the same project member post sessions during the first 2 weeks, with the aim of making the sessions a similar as possible for the sake of comparison. Comment: The intervention was not tailored.
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information:	NA	Quote: The sessions were conducted in a quiet, separate room in each NH in accordance with our protocol. Comment: The intervention was not modified.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Modifications of the robotic session needed to be described		
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	-	Comment: No information available.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	Y	Quote: 52% of the participants attended 22-24 sessions, while 22% attended 20-21 sessions and 26% attended 10-19 sessions.
Kuwamura et al., 2016 [8]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: Telenoid, no specific intervention name.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g,. length, format) needed to be described	N	Quote: As societies continue to age, the number of seniors living alone will increase. Such changes limit opportunities to communicat with others and weaken their connection to society. Such limited society connections increase the risk of dementia (Fratiglioni et al., 2000) Furthermore, as the degrees of dementia progress, seniors become more withdrawn and experience more difficulty communicating wit others including caregivers. … In Japan, there are volunteers who visit care facilities periodically to have conversation with residents. For smooth communication wit the residents with AD, the volunteers need to be trained. Even though they provide opportunities for seniors to have conversation, the cannot attend the facilities every day. … In this paper, we introduce a teleoperated robot Telenoid, which can be teleoperated from remote place. By using Telenoid, seniors livin alone or in nursing homes will have more opportunities to communicate with their family or volunteers. Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: Telenoid has six independent actuators (jaw movement, yaw, pitch, and roll movement for its neck and horizontal movements fo each arm) that allow it to synchronize motion with the speaker. The speaker's head motion is captured by sensors (threeaxis accelerometer and three-axis magnetometer) embedded in a headset and transmitted to the robot. Speech-driven lip motion generation, which creates li motions from the speaker's vocal information, is used to control Telenoid's jaw movement (Ishi et al., 2011).
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Quote: Participants spoke with a person (henceforth speaker) in a face-to-face condition (Face condition) and a Telenoidmediated conditio (Telenoid condition). The conditions were randomly ordered and the duration of the conversations was limited to 15 min each. Th conversations were suspended when the participant was not feeling well or was unwilling to talk. … In the Telenoid condition, the speakers controlled a Telenoid R3b (Figure 1) to communicate with the elderly participants by a teleoperatio system from a remote location (Figure 2). Another experimenter first carried Telenoid and sat in front of the participant. During th conversation, the experimenter gave Telenoid to the participant, and if the participant did not refuse it, the participant held it and continue the conversation. When participants held Telenoid, they put it on their laps and sometimes leaned it against a desk.
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information:	Y	Quote: An observer monitored the interaction between the participant and the speaker in both conditions. After both conditions wer conducted, the speaker and the observer answered questionnaires. We recruited five university students who major in gerontology a evaluators. None of the evaluators had experience of using robots. They played the speaker and observer roles in turn. We asked them t make evaluation in the quality of conversation and made no further specific instructions.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Professional background and experience as well as specific training to conduct the robotic session needed to be described		
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: Participants spoke with a person (henceforth speaker) in a face-to-face condition (Face condition) and a Telenoidmediated condition (Telenoid condition). Comment: Individual delivery of intervention.
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described	Y	Quote: All conversations were exchanged in a public space, either in the dining room or the TV room.
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	Y	Quote: The experiments were conducted once or twice a week for 3 months in a group home for seniors with dementia in Osaka, Japan. … The average duration of an interaction was 709.1 s (SD = 316.2) for the Face condition and 798.7 s (SD = 383.3) for the Telenoid condition
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	Y	Quote: The dates and times of the trials were adjusted based on the conditions of the participants and the convenience of the group home. … The conversations were suspended when the participant was not feeling well or was unwilling to talk.
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described	-	Comment: No information available.
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	-	Comment: No information available.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	-	Comment: No information available.
Moyle et al., 2016 [9]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: CuDDler, no specific intervention name.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: People with dementia can also exhibit behavioural and psychological deficits or excesses that cause stress for the person as well a those providing care. … Residents in LTC often spend the majority of their time alone, and not engaged in meaningful activities [5,9]. They may also spend th best part of their days sitting waiting for something to happen [10]. A lack of stimulation can be particularly detrimental to people with dementia as it adversely affects their mood, increases their level of agitation and results in a high use of pharmaceutical interventions [6] To counter these issues, researchers have been investigating the use of companion robotic animals as a means to comfort, engage, an stimulate social interaction with dementia [11–13]. … Companion robots can provide an opportunity for an older person with dementia to be socially stimulated through interaction with the robo and/or the opportunity for the robot to be a tool for social interaction with other people in the environment [15]. … In contrast to real animals, some advantages of robotic animals include. … Companion robots may also enhance quality of life in older people with dementia [12]. Studies have reported improvements in relationship and loneliness, relaxation, motivation, and socialization in older people who have interacted with companion robotic animals [12,13,15-17]. … This study aimed to generate pilot data to explore the feasibility and effect of using an engaging robotic animal, namely CuDDler, o emotional states of people with dementia living in nursing home care. Such a population is at risk of limited social interaction and therefor loneliness and social isolation. Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: Each session included one participant, one facilitator and one CuDDler. … The CuDDler robot is a prototype robotic teddy bear developed by Dr TanYeowKee, Scientist andGroup Leader ofRobotic Senses Researc Institute, for Infocomm, Singapore. CuDDler is 40cm tall, 20cm wide, and weighs approximately 4kg (see Fig. 1). … In this study the research facilitator did not use the external phone and software module to manually control CuDDler's response.
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Quote: The process of giving and removing CuDDler to and from each participant was standardised and guided by a protocol that is outline below.
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	Y	Quote: The facilitator of each intervention (MB) is a registered nurse with extensive experience in dementia care. As a research tea member MB was aware of the research aim. The facilitator's role was to observe participants and to direct participants to interact wit CuDDler using a series of questions that referred to CuDDler and the resident's experience with CuDDler.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: Each session included one participant, one facilitator and one CuDDler. … All sessions were conducted in a quiet and closed room in the nursing home. … Participants were offered three researcher-facilitated CuD-Dler sessions per week for 30 min each, for a period of 5weeks (a total of 1 sessions or 7.5h).
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features	Y	Quote: All sessions were conducted in a quiet and closed room in the nursing home.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Minimum required information: The institution or ward and exact location needed to be described		
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	Y	Quote: Participants were offered three researcher-facilitated CuD-Dler sessions per week for 30 min each, for a period of 5weeks (a tota of 15 sessions or 7.5h).
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	Y	Quote: The sessions were conducted between 13:00 and 17:00—the time when people with dementia are known to be most agitated [17,20] This time was deliberately chosen in order to examine the effectiveness of CuDDler in reducing behavioural and psychological symptom of dementia, such as agitation. … The facilitator's role was to observe participants and to direct participants to interact with CuDDler using a series of questions that referre to CuDDler and the resident's experience with CuDDler. … Where a participant seemed unsure or unable to touch or speak to CuDDler the facilitator assisted CuDDler's reaction by helping th participant to touch CuDDler.
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described	-	Comment: No information available.
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	-	Comment: No information available.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	-	Comment: No information available.
Bemelmans et al., 2015 [10]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: PARO, no specific intervention name.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: The ongoing development of technology is seen as having vast potential for the provision of care. Technologies such as information technology and robotics make innovative applications possible that may facilitate caregivers in their work. The rapid development o "social" user interaction software implemented in robots makes application of care robots for social purposes attainable. … Paro is a socially assistive seal robot, specifically designed for psychogeriatric care. … In this study, the embedding of robot innovations in daily care practice is studied. Together with care professionals, specific psychogeriatri care applications were developed for Paro.8 These applications, further called interventions, define the use of the robot for its targe population(s) in care provision. The intention of the intervention is specified in terms of the intended effect or the expected added value o

TIDieR checklist	Y/N/NA/-	Quote and/or comment
		using the system. Information and/or instructions for both care receivers and providers had been made available. Without the context of a intervention, it is highly likely that the application of the robot in care will be seen as an entertaining gadget only. This study aims at evaluating the outcomes of 2 of the previously developed Paro interventions,8 applying the robot in psychogeriatric car Making Paro interventions part of the daily care routine requires the formulation of individual care targets for each resident, which will b done within the 2 Paro interventions. The first intervention aims at therapeutic effects in providing comfort to individual distressed patient with dementia in critical timeslots during the daily routine. Distress is a common symptom of dementia, and may result in distorte activation patterns.9 The second Paro intervention aims at facilitating the provision of daily care tasks by care staff. Paro could bring abou a desired mindset of the patient, lowering common resistance to activities of daily living (ADL) care tasks executed by the staff, functionin as a diversion or as a means to bring about a more cooperative mood. … Therpeutic approach: An indication for the goals was as follows: stimulating senses, getting attention, relaxation, and rest. … Care support approach: An indication for the goals was as follows: focusing, relaxation, and fear reduction. Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: Paro is a socially assistive seal robot, specifically designed for psychogeriatric care, with 5 types of sensors: tactile, light, audio temperature, and posture, with which it can perceive people and its environment. It can respond to stimuli, perceived by its sensors, b making noise, moving its eyes, head, and flippers.6,7
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Quote: The first step in the study was a kickoff meeting at each participating care organization to inform legal representatives, family members, care providers, and team managers about the aim and procedure of the study. … After the kickoff meeting, the local care providers participated in a 2-week training course, introducing Paro, the intervention protocols and its goals. … Each of the 2 interventions was described by a protocol that nurses should follow, wherein the course of the intervention was described i simple steps. This protocol was to be used in the context of the specified goals defined for the particular participant. At the onset of th targeted behavior (therapeutic application), or at the start of the care support activity, Paro was introduced by the care provider similar t the following text: “Look Mrs/Mr X, this is the seal Paro. He will sit with you for a while. You can stroke, cuddle, or talk to him if yo like. He can sit on your lap or stay on the table.” During the activity, Paro stayed on a table (or on the participant’s lap), so that th participant could interact with it. Paro tries to stimulate interaction and attracting attention from the participant by making noise, movin its flippers and looking at the participant. When being stroked it gives the impression of being enjoyed, thus reinforcing the interaction The care provider was active in reminding the participant of the presence of Paro if necessary, and stimulated interaction between th participant and Paro. At the end of the activity (after approximately 15 minutes) the session was ended smoothly by saying goodbye t Paro. The caregiver said, for example, “Paro, until next time. Would you also like to say something to Paro Mrs/Mr X?”
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	N	Quote: Each of the 2 interventions was described by a protocol that nurses should follow, wherein the course of the intervention wa described in simple steps. … Paro was introduced by the care provider similar to the following text. Comment: No details about expertise or background of nurses.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: Paro based on individually defined interventions. … During the activity, Paro stayed on a table (or on the participant’s lap), so that the participant could interact with it.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described	N	Quote: 3 Dutch psychogeriatric care-providing organizations (ie, Sevagram, Proteion, and Orbis) participated in this multicenter study spread over 6 different locations in Limburg, a southern province of the Netherlands. Comment: No details about the location where the intervention was conducted.
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	Y	Quote: For each participant, the study had a duration of 4 months. To make this possible, the entire study had a duration of approximately 1.5 years. Per participant, the study was divided into 4 consecutive phases (ie, ABAB) of 1 month each. … In the second and fourth phases (ie, B phases) the participants received the Paro intervention. … At the end of the activity (after approximately 15 minutes) the session was ended smoothly by saying goodbye to Paro. Comment: 10 sessions per participant.
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	Y	Quote: This protocol was to be used in the context of the specified goals defined for the particular participant. … At the end of the activity (after approximately 15 minutes) the session was ended smoothly by saying goodbye to Paro. … Rejection of the intervention, to be recognized by the care staff, had to be honored immediately whereupon the session had to be terminated smoothly. The medical team could further decide to withdraw a subject from the study for urgent medical reasons.
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described	-	Comment: No information available.
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	-	Comment: No information available.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	-	Comment: No information available.
Gustafsson et al., 2015 [11]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: JustoCat®.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: Currently, no treatment exists to cure dementia. Therefore, alternative forms of care are emphasized as the focus in research, aiming to improve the well-being of individuals affected in various ways by the disease (e.g., individuals with dementia, family members/relatives, professional caregivers) (Swedish Agency for Health Technology Assessment and Assessment of Social Services [SBU], 2006). The principal goals of dementia care are the optimization of physical health, cognition, activity, and well-being, as well as the detection and treatment of BPSD (SBU, 2006; WHO, 2012). Many individuals need innovative solutions in dementia care (Cesta et al., 2011; Huschil & Clune, 2012; SBU, 2006; Shibata, Wada, Ikeda, & Sabanovic, 2009). Alternative forms of care, such as art, music, dance, singing, massage, and pets, are advocated. Research has shown that art and music (Gerdner & Swanson, 1993; Sung, Chang, & Lee, 2010) facilitate health and stimulate feelings of individuals with dementia. Spending time with a pet is seen as valuable (Friedmann, Katcher, & Thomas, 1980; Libin & Cohen-Mansfield, 2004; Sellers, 2006) and the reason for this positive effect on humans has been discussed.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
		… Two major theories have been proposed. The first theory is the biophilia hypothesis (Wilson, 1984), which relates to humans being naturally drawn to animals and other living species, and is explained in evolutionary terms as entailing a greater possibility of surviving danger. The second theory is the social support hypothesis (Beck & Katcher, 2003), which proposes that animals give their owners social support and mediate between owners and others. However, there can be obstacles to using pets in care (i.e., animal-assisted interventions). … Based on these issues and the results of various studies, the use of robotic pets has been suggested. … A continued need to develop protocols for the enhanced use of such robots has been emphasized (Roger et al., 2012) and further studies are being conducted to develop robot pet technology (Bernabei et al., 2013). … Health and social welfare technology innovations aimed at supporting and offering alternative care and treatment for improvements in health or social care should be scrutinized to prove their impact. This approach is even more relevant when new care and treatments are developed for vulnerable populations, such as individuals with dementia. The aims of the current pilot study were to explore the reaction of individuals with dementia to an interactive robotic cat and their relatives' and professional caregivers' experiences regarding its usability, function, and effects. … JustoCat® (Figure 2) is an interactive robotic pet developed using reminiscence therapy as a framework (Woods, Spector, Jones, Orrell, & Davies, 2005); it is the result of considering the promising outcomes of the robotic seal, PARO (Mordoch et al., 2013; Moyle et al., 2013; Wada et al., 2004). Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: JustoCat® (Figure 2) is an interactive robotic pet developed using reminiscence therapy as a framework (Woods, Spector, Jones, Orrell, & Davies, 2005); it is the result of considering the promising outcomes of the robotic seal, PARO (Mordoch et al., 2013; Moyle et al., 2013; Wada et al., 2004).
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Quote: The intervention involved activities of discovery, engagement, and emotional response, as well as social interaction between the participants and professional caregivers through touching, holding, and petting the robotic cat. Supervised by the occupational therapist, the professional caregivers presented JustoCat and demonstrated how to stroke it and make it purr. The importance of staying with the participant was emphasized (i.e., to not just hand over JustoCat and leave). Professional caregivers were also given suggestions on how to work with JustoCat, support interaction with it, and communicate with participants. It was suggested that the professional caregivers should consistently talk about JustoCat and ask what the participants experienced (e.g., "Is it smooth?", "Is it breathing?", "Is it purring?", "Why is it purring?", "What is it called?", "What is the name of the cat?", "Have you met cats before?", "Have you owned cats?", "Have you known other cats?", "What was/were its name/their names?"). After individually adapted introductions, participants had free access to JustoCat, although some needed to be reminded.
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	N	Quote: The professional caregivers were instructed and supervised by the specially trained occupational therapist to be sensitive to the participants and not force the introduction and training. Comment: No details about expertise or background of professional caregivers.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: Supervised by the occupational therapist, the professional caregivers presented JustoCat and demonstrated how to stroke it and make it purr. The importance of staying with the participant was emphasized (i.e., to not just hand over JustoCat and leave).
Where	N	Comment: No information available.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described		
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	N	Comment: No information available.
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	Y	Quote: After individually adapted introductions, participants had free access to JustoCat, although some needed to be reminded.
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described	-	Comment: No information available.
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	Y	Quote: After individually adapted introductions, participants had free access to JustoCat, although some needed to be reminded.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	-	Comment: No information available.
Jøranson et al., 2015 [12]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: PARO, no specific intervention name.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: One specific psychosocial treatment is animal-assisted intervention. Studies involving animal-assisted therapy conducted in NH on residents with dementia have shown reduced symptoms of agitation and increased social interaction,18,19 and reduced symptoms o depression. … Interaction with animal-looking, socially assistive robots, also called SARs, is an alternative to human-animal interaction. SARs ar developed to mediate communication and stimulate social exchange so as to provide social, psychological, and physiological benefits.24 The baby harp seal, Paro, is the most common SAR used in studies.25 … Reviews on intervention studies using SARs emphasize weak methodological quality, small samples, short durations, lack of control group and follow-up measures. The importance and need for further studies with a more robust research design and larger samples have beer emphasized.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
		… The aim of this article was to examine effects on symptoms of agitation and depression in NH residents with moderate to severe dementi participating in Paro group activity compared with a control group. Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: Paro has the size of a baby harp seal with a swiveling head, moving legs and tail, and microphones that make the authentic sound of a real baby harp seal. Paro is a highly advanced, adaptive robot with artificial intelligence software.27 It recognizes voices and ca respond to repeated words. Its artificial fur contains 12 sensors, creating interactivity between users and the robot as it responds to th user's repetitive motions, such as stroking.
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Quote: During sessions, the activity leader should sit in front of the group. Each session started with a presentation of Paro as an articulate toy to reduce misinterpretations. The activity leader promoted interaction with Paro and distributed it to participants' laps for equal period of time, preferably during 2 rounds to reduce waiting time. Sessions involved activities naturally occurring between the participant themselves, between the participants and the activity leader, and between each participant and Paro, such as petting, talking to and about smiling to, and singing for. An additional staff member was always present in the background if participants needed assistance during th session or wanted to leave the room.
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	N	Quote: Local nurses were trained to conduct the intervention. … Staff members from each unit participated in a mandatory Paro training course before the intervention period. Activity sessions were le by one of the trained NH staff, who was supervised post sessions during the first 2 weeks by one member of the project group, aiming t make sessions in all intervention units as similar as possible for the sake of comparison. … The activity leader promoted interaction with Paro and distributed it to participants' laps for equal periods of time, preferably during rounds to reduce waiting time. … Staff members from each unit participated in a mandatory Paro training course before the intervention period. … Activity sessions were led by one of the trained NH staff, who was supervised post sessions during the first 2 weeks by one member of th project group, aiming to make sessions in all intervention units as similar as possible for the sake of comparison. Comment: No details about background of expertise of intervention facilitator. In a second publication of the authors they state these ar nurses.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: Group activity with Paro. … The protocol states that sessions are to take place in a separate, quiet room, that all participants sit close together in a half circle without table in front of them, and that they all sit in their usual seats. During sessions, the activity leader should sit in front of the group. ... A maximum of 6 participants from each unit formed a Paro group.
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described	Y	Quote: Ten NHs with adapted units were recruited from 3 counties in eastern Norway during 2012 and 2013. … The protocol states that sessions are to take place in a separate, quiet room, that all participants sit close together in a half circle without table in front of them, and that they all sit in their usual seats.
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information:	Y	Quote: Sessions lasted for approximately 30 minutes and were conducted twice a week during the day on weekdays over the course of 1 weeks.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Frequency, duration, and length of the robotic session needed to be described		
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	-	Comment: No information available.
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described	-	Comment: No information available.
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	-	Comment: No information available.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	Y	Quote: 52% of the participants attended 22-24 sessions, while 22% attended 20-21 sessions and 26% attended 10-19 sessions. (DO 10.1111/jan.13076)
Valenti Soler et al., 2015 [13]: Nursing home		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: PARO, NAO, DOG. No specific intervention name.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: Animal-assisted therapy (AAT), the use of animals in therapy sessions, is one such non-pharmacological tool currently unde investigation. … AAT as an approach that may be considered a non-pharmacological intervention for non-cognitive symptoms and behavior. AAT seems t calm agitated behavior and has positive effects on the quality of social interaction and mood disturbances, although no effect was observe on cognitive performance (Bernabei et al., 2013). … However, AAT is not always possible. Animals are often not allowed in nursing homes or day care centers, due to the risk of injury t patients, staff or visitors, the possibility of allergic reactions, and the potential nuisance of cleaning up after the animals. … Thus, the alternative of replacing real animals with animalshaped objects became an object of investigation (Nakajima et al., 2001). I recent years, social robots have been also used as reasonable substitutes for animals in therapy for people suffering from dementia (Wad et al., 2008; Shibata, 2012). … Other potential benefits of therapy with robots are that there are no known adverse effects, specially trained personnel are not required an they can repeat the script in the same way as many times as it is required. … Bemelmans et al reviewed the literature in 2012 and found that the most of the studies reported positive effects of companiontype robot on (socio) psychological (e.g., mood, loneliness, and social connections and communication) and physiological (e.g., stress reduction parameters (Bemelmans et al., 2012).

TIDieR checklist	Y/N/NA/-	Quote and/or comment
		In the present study, animals and robots were added into the therapy sessions at a center for dementia patients. They were employed just a any other tool the therapists might use, in order to discover the potential effect of the tool without changes in the therapists' actions, th session content or the environment of the patients. … Pilot studies were carried out in order to test the effect of introducing a humanoid robot (NAO), a pet robot (PARO) and a real traine animal (DOG) in the therapeutic sessions for patients with dementia in relation to behavior changes, apathy and quality of life. Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: A social robot with the appearance, movement and sounds of a baby seal. It has programmable behavior and sensors for posture touch, sound, and light. Its eyes, which are big, black and with long eyelashes, can open and close; it can also move its neck (laterally an up-and-down), anterior flippers and tail. Although its movements are silent, it emits short and sharp squeals like a real seal. It is very so and white in color, with hard Velcro covering the access to the mechanism (so it is not easy to access it during therapy sessions). It canno move forward or change its sounds and weighs 2.7 kg. … A white humanoid robot, measuring 58 cm tall and weighing 4.3 kg. It has sensors for movement, touch, sonar, sound, and vision. It ca talk and sing. It has a robotic voice, but it is possible to replace it with mp3 recordings of a child-like human voice that is easier for patient to understand. It can move its neck and arms, walk, or dance. Software was developed to allow the robot to act out a script for therap sessions. These scripts included effects like speech, music and movements. During the therapy session, the therapist could control th activation of and progression through the script using remote control software installed in an Android device. The therapists were able t pause the script, repeat sections of it, or jump to another section. It was also possible to use this software to remotely operate the robot i order to make it walk or move its head (Martin et al., 2013). … The animals used were dogs: two adult black Labrador Retrievers. Both had received prior training for therapy. … The robots and the animals were wearing specially designed vests with pockets and Velcro, in order to carry the objects used in the sessions and move from patient to patient.
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Quote: All therapeutic sessions were conducted by the same therapist, with the same structure as the other therapeutic programs, at th same time of day and for the same duration of time (30–40 min). … The therapists were certified occupational and physical therapists, and neuropsychologists employed by the ACRSF. They receive instructions on the implementation and possible uses of robots and animals as they had no previous expertise in this area. The anima therapists and robot engineers did not participate in the therapy; they only monitored the session from one side of the room, out of th patients' view. Session guides were written and followed in every session. … The patient interacted with the robots, the animals and the therapists to perform several therapeutic activities, including: identifyin numbers, words, and colors using flash cards; practicing the use of everyday objects such as combs; sensory stimulation exercises usin different textured fabrics... The robots and the animals were wearing specially designed vests with pockets and Velcro, in order to carry the objects used in the sessions and move from patient to patient. All sessions had the same overall structure: greeting the group, introduction, therapeutic exercises (cognitive or physical therapy) an ending. The introduction included the presentation of the target tool, orientation activities (spatial, temporal, and personal orientation), an motivation to participate in the therapy session. Therapeutic exercises were small units of activities, focused on the stimulation of memory, language, calculation, movement, praxis, an the use of the different senses. Activities involved physical exercises, questions and answers, music, videos, and manipulation or touchin several objects. Between the exercises, there were brief pauses to encourage the collaboration and participation of all users. At the end of the session, the therapists reviewed what the group did with everyone, asked whether or not they liked participating in th sessions, and lead the group in a farewell song. … Sessions with four levels of difficulty were designed.
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information:	Y	Quote: All therapeutic sessions were conducted by the same therapist, with the same structure as the other therapeutic programs, at th same time of day and for the same duration of time (30–40 min). … The therapists were certified occupational and physical therapists, and neuropsychologists employed by the ACRSF. They receive instructions on the implementation and possible uses of robots and animals as they had no previous expertise in this area. The anima

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Professional background and experience as well as specific training to conduct the robotic session needed to be described		therapists and robot engineers did not participate in the therapy; they only monitored the session from one side of the room, out of th patients' view. Session guides were written and followed in every session.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: Group sessions were employed for patients with mild or mild-moderate dementia, and individual sessions were used with patient with moderate-severe and severe dementia. The group sessions were conducted with 9–15 participants seated in a circle with the therapis and the tools in the inside, moving from patient to patient. In the individual sessions, the therapist was sitting in front of the patient, at th same level, providing stimuli one by one.
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described	N	Quote: All dementia patients being cared for at the Alzheimer Center Reina Sofía Foundation (ACRSF) (Olazarán et al., 2012), a publi nursing home and day care center, were invited to participate. Comment: No details about exact place in the nursing home or day care center the intervention was conducted.
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	Y	Quote: The therapy sessions were performed 2 days a week during 3 months. All therapeutic sessions were conducted by the same therapist with the same structure as the other therapeutic programs, at the same time of day and for the same duration of time (30–40 min).
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	Y	Quote: Sessions with four levels of difficulty were designed.
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described	NA	Quote: Session guides were written and followed in every session. … All sessions had the same overall structure: greeting the group, introduction, therapeutic exercises (cognitive or physical therapy) an ending. Comment: The intervention was not modified.
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	-	Comment: No information available.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	-	Comment: No information available.
Valenti Soler et al., 2015 [13]: Day care center		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: PARO, NAO, DOG. No specific intervention name.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: Animal-assisted therapy (AAT), the use of animals in therapy sessions, is one such non-pharmacological tool currently unde investigation. … AAT as an approach that may be considered a non-pharmacological intervention for non-cognitive symptoms and behavior. AAT seems t calm agitated behavior and has positive effects on the quality of social interaction and mood disturbances, although no effect was observe on cognitive performance (Bernabei et al., 2013). … However, AAT is not always possible. Animals are often not allowed in nursing homes or day care centers, due to the risk of injury t patients, staff or visitors, the possibility of allergic reactions, and the potential nuisance of cleaning up after the animals. … Thus, the alternative of replacing real animals with animalshaped objects became an object of investigation (Nakajima et al., 2001). I recent years, social robots have been also used as reasonable substitutes for animals in therapy for people suffering from dementia (Wad et al., 2008; Shibata, 2012). … Other potential benefits of therapy with robots are that there are no known adverse effects, specially trained personnel are not required an they can repeat the script in the same way as many times as it is required. … Bemelmans et al reviewed the literature in 2012 and found that the most of the studies reported positive effects of companiontype robot on (socio) psychological (e.g., mood, loneliness, and social connections and communication) and physiological (e.g., stress reduction parameters (Bemelmans et al., 2012). In the present study, animals and robots were added into the therapy sessions at a center for dementia patients. They were employed just a any other tool the therapists might use, in order to discover the potential effect of the tool without changes in the therapists' actions, th session content or the environment of the patients. … Pilot studies were carried out in order to test the effect of introducing a humanoid robot (NAO), a pet robot (PARO) and a real traine animal (DOG) in the therapeutic sessions for patients with dementia in relation to behavior changes, apathy and quality of life. Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: A social robot with the appearance, movement and sounds of a baby seal. It has programmable behavior and sensors for posture touch, sound, and light. Its eyes, which are big, black and with long eyelashes, can open and close; it can also move its neck (laterally an up-and-down), anterior flippers and tail. Although its movements are silent, it emits short and sharp squeals like a real seal. It is very so and white in color, with hard Velcro covering the access to the mechanism (so it is not easy to access it during therapy sessions). It canno move forward or change its sounds and weighs 2.7 kg. … A white humanoid robot, measuring 58 cm tall and weighing 4.3 kg. It has sensors for movement, touch, sonar, sound, and vision. It ca talk and sing. It has a robotic voice, but it is possible to replace it with mp3 recordings of a child-like human voice that is easier for patient to understand. It can move its neck and arms, walk, or dance. Software was developed to allow the robot to act out a script for therap sessions. These scripts included effects like speech, music and movements. During the therapy session, the therapist could control th activation of and progression through the script using remote control software installed in an Android device. The therapists were able t pause the script, repeat sections of it, or jump to another section. It was also possible to use this software to remotely operate the robot i order to make it walk or move its head (Martin et al., 2013). … The animals used were dogs: two adult black Labrador Retrievers. Both had received prior training for therapy. … The robots and the animals were wearing specially designed vests with pockets and Velcro, in order to carry the objects used in the sessions and move from patient to patient.
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Quote: All therapeutic sessions were conducted by the same therapist, with the same structure as the other therapeutic programs, at th same time of day and for the same duration of time (30–40 min). … The therapists were certified occupational and physical therapists, and neuropsychologists employed by the ACRSF. They receive instructions on the implementation and possible uses of robots and animals as they had no previous expertise in this area. The anima therapists and robot engineers did not participate in the therapy; they only monitored the session from one side of the room, out of th patients' view. Session guides were written and followed in every session. …

TIDieR checklist	Y/N/NA/-	Quote and/or comment
		The patient interacted with the robots, the animals and the therapists to perform several therapeutic activities, including: identifying numbers, words, and colors using flash cards; practicing the use of everyday objects such as combs; sensory stimulation exercises using different textured fabrics... The robots and the animals were wearing specially designed vests with pockets and Velcro, in order to carry the objects used in the sessions and move from patient to patient. All sessions had the same overall structure: greeting the group, introduction, therapeutic exercises (cognitive or physical therapy) and ending. The introduction included the presentation of the target tool, orientation activities (spatial, temporal, and personal orientation), and motivation to participate in the therapy session. Therapeutic exercises were small units of activities, focused on the stimulation of memory, language, calculation, movement, praxis, and the use of the different senses. Activities involved physical exercises, questions and answers, music, videos, and manipulation or touching several objects. Between the exercises, there were brief pauses to encourage the collaboration and participation of all users. At the end of the session, the therapists reviewed what the group did with everyone, asked whether or not they liked participating in the sessions, and lead the group in a farewell song. … Sessions with four levels of difficulty were designed.
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	Y	Quote: All therapeutic sessions were conducted by the same therapist, with the same structure as the other therapeutic programs, at the same time of day and for the same duration of time (30–40 min). … The therapists were certified occupational and physical therapists, and neuropsychologists employed by the ACRSF. They received instructions on the implementation and possible uses of robots and animals as they had no previous expertise in this area. The animal therapists and robot engineers did not participate in the therapy; they only monitored the session from one side of the room, out of the patients' view. Session guides were written and followed in every session.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: Group sessions were employed for patients with mild or mild-moderate dementia, and individual sessions were used with patients with moderate-severe and severe dementia. The group sessions were conducted with 9–15 participants seated in a circle with the therapist and the tools in the inside, moving from patient to patient. In the individual sessions, the therapist was sitting in front of the patient, at the same level, providing stimuli one by one.
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described	N	Quote: All dementia patients being cared for at the Alzheimer Center Reina Sofía Foundation (ACRSF) (Olazarán et al., 2012), a public nursing home and day care center, were invited to participate. Comment: No details about place (e.g room) in the nursing home or day care center the intervention was conducted.
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	Y	Quote: The therapy sessions were performed 2 days a week during 3 months. All therapeutic sessions were conducted by the same therapist with the same structure as the other therapeutic programs, at the same time of day and for the same duration of time (30–40 min).
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	Y	Quote: Sessions with four levels of difficulty were designed.
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how)	NA	Quote: Session guides were written and followed in every session. … All sessions had the same overall structure: greeting the group, introduction, therapeutic exercises (cognitive or physical therapy) and ending.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Minimum required information: Modifications of the robotic session needed to be described		Comment: The intervention was not modified.
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	-	Comment: No information available.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	-	Comment: No information available.
Moyle et al., 2013 [14]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: PARO, no specific intervention name.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: People with dementia may exhibit behavioral deficits or excesses that cause stress for the individual, caregivers, and other resident in care facilities. … Researchers have found that communication with animals can have a positive effect on older adults by increasing their social behavior an verbal interaction, fostering the building of relationships through interaction with others, and decreasing feelings of loneliness (Churchill Safaoui, McCabe, & Baun, 1999; Kanamori et al., 2001; Sellers, 2006). There are situations, however, where a substitute, such as a roboti pet, may be a better match. The presence of animals in residential care settings can place residents at risk of infection and injury and creat a number of other problems, including increased stress for animals that are repeatedly fed and handled by numerous residents, conflic among residents who claim animals as their own, fear among residents who do not like animals or a particular type of animal, and additiona duties for nursing staff (e.g., feeding, walking, cleaning the animals). To counter these issues, researchers have investigated the use o robotic animals for use in instances where the presence of real animals is contraindicated. Robotic pets, also called emotional, companion or therapeutic robots, have recently been introduced into long-term care as companions for individuals with cognitive impairment and othe physical disabilities (Libin & Cohen-Mansfield, 2004). The advantages of robotic pets have been listed as the highly imitative, life-lik behavior; modeling of emotional states usually experienced by humans; and provision of alternative models of communication (e.g., tactile kinesthetic, visual sensory, emotional, and social). PARO, a therapeutic companion robotic seal, has been shown to have a psychologica effect on people with dementia, improving their relaxation and motivation as well as improving the socialization of individuals with others including caregivers (Wada & Shibata, 2007; Wada, Shibata, Musha, & Kimura, 2008). This small-scale project aimed to provide initia pilot data on the effectiveness of PARO in engaging people with dementia to inform justifications for more extensive research. The study sought to compare the effect of PARO to participation in an interactive reading group on emotions in people living with moderate to severe dementia in a residential care setting. Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: PARO, invented by Takanori Shibata, a researcher at Japan's National Institute of Advanced Industrial Sci- ence and Technology, is a therapeutic, pet-type robot with the appearance of a baby harp seal (Figure).
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities	Y	Quote: The PARO intervention involved activities around the concepts of discovery, engaging an emotional response, social interaction i the group through discussion about PARO, and touching PARO. Discovery encouraged participants to examine PARO while being passe around the group. Individuals were asked if they would like to get to know PARO. To help engage an emotional response, the facilitato

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Minimum required information: Procedure to conduct the robotic session needed to be described		showed PARO to each individual and demonstrated how PARO responded. For example, the facilitator held PARO close to participants faces and stated, "Hello, XX. If we talk to Millie (name of PARO), she will listen and respond. Let's see what happens when you speak t Millie." Social interaction encouraged residents to discuss PARO within the group. The facilitator encouraged discussion through se questions such as, "What does everyone think of PARO?", "Who used to have a pet?", and "How does Millie compare to your pet?" Participants were encouraged to touch PARO and to talk about how the fur felt and other opportunities such as looking at and describin PARO's eyes and eyelashes. … One PARO was introduced in Weeks 1-3 and then a second PARO was introduced into the group in Weeks 4 and 5. The aim of introducin two PAROs was to allow participants more individual time with the robot. … Two members of the research team (W.M., C.J.) using a protocol manual that outlined content of each session, divided into four key areas trained the facilitator. Procedure, which was designed around the following areas: introduction - emotions, social interaction, and closure Explanation - how to implement activity and the process for each of the four areas; Time - the time proposed for each of the four key areas Equipment - equipment requirements for each session and each of the four areas.
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	Y	Quote: The facilitator of the intervention and control activity was a bachelor degree–educated activity therapist (W.F.). Two members o the research team (W.M., C.J.) using a protocol manual that outlined content of each session, divided into four key areas, trained th facilitator. Procedure, which was designed around the following areas: introduction - emotions, social interaction, and closure; Explanatio - how to implement activity and the process for each of the four areas; Time - the time proposed for each of the four key areas; Equipmen - equipment requirements for each session and each of the four areas.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: Both intervention and control activities ran for 45 minutes, three afternoons per week, for 5 weeks with groups of nine. … The PARO intervention involved activities around the concepts of discovery, engaging an emotional response, social interaction in th group through discussion about PARO, and touching PARO.
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described	N	Quote: Residential aged care facility in Queensland, Australia in 2011. … The management from one residential care facility in the north of Brisbane, Queensland, Australia, participated in the study. The facilit offers 52 low-care and 62 nursing home beds. Comment: No details about exact place in the nursing home the intervention was conducted.
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	Y	Quote: Both intervention and control activities ran for 45 minutes, three afternoons per week, for 5 weeks with groups of nine.
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	NA	Quote: One PARO was introduced in Weeks 1-3 and then a second PARO was introduced into the group in Weeks 4 and 5. The aim o introducing two PAROs was to allow participants more individual time with the robot. … Treatment fidelity was monitored through a standardized protocol manual and weekly spot checks of the intervention. Comment: The intervention was not tailored.
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described	-	Comment: No information available.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	Y	Quote: Treatment fidelity was monitored through a standardized protocol manual and weekly spot checks of the intervention.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	-	Comment: No information available.
Sant'Anna et al., 2012 [15]		
Brief name Provide the name or a phrase that describes the intervention Minimum required information: The robotic name needed to be mentioned	Y	Comment: PARO, no specific intervention name.
Why Describe any rationale, theory, or goal of the elements essential to the intervention Minimum required information: An underpinning theoretical approach and rationale to develop the robotic session and its characteristics (e.g., length, format) needed to be described	N	Quote: Le mode d'expression des troubles du comportement est vaste et, outre les troubles cités, l'anxiété, la dépression, l'agitation l'instabilité de l'humeur, les troubles du sommeil et de l'appétit, la désinhibition, les hallucinations, les délires et l'apathie en font partie. Les troubles du comportement peuvent être passagers et ils peuvent répondre positivement à une prise en charge non médicamenteus adaptée qui doit être proposée en amont d'un recours aux psychotropes. Le ministère de la Santé [4] a souligné, en 2008, l'importance d l'association d'une thérapie non médicamenteuse à un traitement médicamenteux spécifique pour les patients atteints de démence. … Le secteur de la robotique, en particulier, a également subi une forte évolution. Plusieurs études ont été menées sur l'adéquation d'un robo de forme animal (tel que le chat Necoro, le phoque Paro, le chien Aibo et le cheval Karakuri) dans le traitement des patients souffrant d troubles cognitifs. … Dans certains cas, la robot-thérapie serait plus accessible, acceptable et sécurisée que l'intervention avec de vrais animaux et cela susciterai des émotions positives, telles que la curiosité, la tendresse et la joie [9]. … Notre hypothèse était que le possible attachement des patients au robot leur permettrait de communiquer et d'établir des liens avec le soignants et donc d'avoir un impact sur leur comportement. … L'objectif de cette étude préliminaire est de tester l'impact de l'intervention thérapeutique avec le robot Paro pour les patients atteints d MA sévère ayant une contreindication (agressivité majeure ou état grabataire) pour la prise en charge non pharmacologique classique. A cette fin, nous avons mesuré l'impact de l'intervention sur les troubles du comportement et sur la communication des patients. Comment: An underpinning theoretical approach to develop the intervention is not described.
What Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (such as online appendix, URL) Minimum required information: Material used to conduct the robotic session needed to be described	Y	Quote: Le robot Paro a été développé en 1993, au Japon par l'équipe du Dr Shibata et a l'apparence physique d'un bébé phoque, recouver d'une fourrure synthétique blanche et pesant 2,8 kg. Il est équipé de capteurs qui lui permettent d'être sensible à la lumière, au toucher, la provenance d'un son, au contenu de certains discours et enfin à sa position dans l'espace. Paro est capable de mouvoir ses nageoires, so cou à la verticale et à l'horizontale et ses paupières (ce qui lui permet des expressions faciales diverses) [13].
What Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities Minimum required information: Procedure to conduct the robotic session needed to be described	Y	Quote: Les séances étaient individuelles, animées par deux intervenants (une psychologue et une stagiaire psychologue) qui se rendaien dans les chambres avec Paro. … L'intervenant posait le phoque sur une table et sollicitait l'attention du patient en donnant des repères clairs sur l'identité du robot. U temps était consacré à la libre expression et au toucher. Une séance de debriefing a eu lieu au départ du robot phoque, une semaine aprè la fin des huit séances.

TIDieR checklist	Y/N/NA/-	Quote and/or comment
Who provided For each category of intervention provider (such as psychologist, nursing assistant), describe their expertise, background, and any specific training given Minimum required information: Professional background and experience as well as specific training to conduct the robotic session needed to be described	N	Quote: Les séances étaient individuelles, animées par deux intervenants (une psychologue et une stagiaire psychologue) qui se rendaien dans les chambres avec Paro. Comment: No details about expertise of facilitators.
How Describe the modes of delivery (such as face to face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group Minimum required information: Modes of delivery (facilitated/non-facilitated and individual/group) of the robotic session needed to be described	Y	Quote: Les séances étaient individuelles, animées par deux intervenants (une psychologue et une stagiaire psychologue) qui se rendaien dans les chambres avec Paro.
Where Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features Minimum required information: The institution or ward and exact location needed to be described	Y	Quote: Par rapport aux études déjà menées avec le robot Paro, notre méthode présente des spécificités : l'intervention est réalisée dan l'espace de vie du patient et un temps privilégié est consacré à chaque personne. Cela rend l'activité accessible aux patients auparavan isolés en raison de leur état d'agressivité majeure ou de grabatisation.
When and how much Describe the number of times the intervention was delivered and over what period of time including the number of sessions, their schedule, and their duration, intensity, or dose Minimum required information: Frequency, duration, and length of the robotic session needed to be described	Y	Quote: Les interventions se sont déroulées à raison de deux fois par semaine pendant 20 minutes, totalisant huit séances pour chaque patient
Tailoring If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how Minimum required information: Measures to tailor the robotic session needed to be described	-	Comment: No information available.
Modifications If the intervention was modified during the course of the study, describe the changes (what, why, when, and how) Minimum required information: Modifications of the robotic session needed to be described	-	Comment: No information available.
How well Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them Minimum required information: Measures to improve intervention fidelity needed to be described	-	Comment: No information available.
How well Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned Minimum required information: Intervention fidelity needed to be described	-	Comment: No information available.

Note: Numbers in the column "Quote and/or comment" represent references in the published research Article.
Abbreviations: Y=Yes, reported; NA=Not applicable because the intervention was not tailored or modified; N=No, not reported; -=Unclear whether it was conducted.

4.3. Detailed reporting assessment of ethical issues

Reference	Was ethical approval obtained?	Was informed consent obtained?	Who provided informed consent?	How was informed consent obtained regarding procedures?	Was ongoing consent/assent obtained?	How was ongoing consent/assent obtained regarding procedures?	Were ethical issues discussed by the authors?
Demange et al., 2018 [1]	?	Y	L, P	?	Y	Y	N
Quote and/or comment	This study was submitted and approved by the Hospital Broca clinical research committee. Comment: No information on ethical approval.	Only those who gave written consent were included in the study.	All the participants (and their legal representatives when necessary) received written and oral information about the protocol in accordance with the Declaration of Helsinki.	Comment: No detailed information.	Whenever the patient asked for help or refused to continue, the session was interrupted. No persuasive arguments were used when the participant refused. The health care providers just asked why and asked if the participant was willing to try it another day.	Whenever the patient asked for help or refused to continue, the session was interrupted. No persuasive arguments were used when the participant refused. The health care providers just asked why and asked if the participant was willing to try it another day.	
Moyle et al., 2018 [2]	Y	Y	F, P	?	Y	?	N
Quote and/or comment	Ethical approval was obtained from Griffith University Human Ethics Committee (NRS/03/14/HREC) and respective care organisations, as necessary.	All participants, if capable, or next-of-kin, provided written informed consent at the time of enrolment.	All participants, if capable, or next-of-kin, provided written informed consent at the time of enrolment.	Comment: No detailed information.	Verbal assent was obtained from participants at the start of every intervention session with PARO or plush toy.	Comment: No detailed information.	
Liang et al., 2018 [3]	Y	Y	F	?	?	?	N
Quote and/or comment	Approval was obtained from the University of Auckland Human Participants Ethics Committee.	Participant information sheets and consent forms were sent to Selwyn Foundation dementia day care attendees. As the care recipients with dementia were unable to provide informed consent because of cognitive impairments, the caregivers, as their enduring power of attorney, provided written consent on their behalf.	As the care recipients with dementia were unable to provide informed consent because of cognitive impairments, the caregivers, as their enduring power of attorney, provided written consent on their behalf.	Comment: No detailed information.	Comment: No information.	Comment: No information.	
Moyle et al., 2017 [4]	Y	Y	F, P	?	Y	?	N

Reference	Was ethical approval obtained?	Was informed consent obtained?	Who provided informed consent?	How was informed consent obtained regarding procedures?	Was ongoing consent/assent obtained?	How was ongoing consent/assent obtained regarding procedures?	Were ethical issues discussed by the authors?
Quote and/or comment	Institutional ethical approval was obtained from Griffith University Human Ethics Committee (NRS/03/14/HREC) and respective care organizations, and approval was obtained from individual facility managers.	Written informed consent was obtained from all participants (if capable) or next-of-kin at the time of enrollment.	Written informed consent was obtained from all participants (if capable) or next-of-kin at the time of enrollment.	Comment: No detailed information.	Participant verbal assent was obtained at each intervention session with PARO or plush toy.	Comment: No detailed information.	
Petersen et al., 2017 [5]	Y	Y	F, P	?	?	?	N
Quote and/or comment	IRB approval and ethics committee approval were obtained.	Subjects who met inclusion/exclusion criteria, or their significant family member, were approached and consented.	Subjects who met inclusion/exclusion criteria, or their significant family member, were approached and consented.	Comment: No detailed information.	Comment: No information.	Comment: No information.	
Rouaix et al., 2017 [6]	?	Y	P	?	?	?	N
Quote and/or comment	This study was carried out in accordance with the recommendations of Paris Descartes ethical procedures and included written informed consent from all subjects according to the Declaration of Helsinki. Comment: No information on ethical approval.	Inclusion criteria were: having a clinical diagnosis of neurodegenerative dementia and having signed a consent form. Included written informed consent from all subjects according to the Declaration of Helsinki.	Inclusion criteria were: having a clinical diagnosis of neurodegenerative dementia and having signed a consent form.	Comment: No detailed information.	Comment: No information.	Comment: No information.	
Jøranson et al., 2016 [7]	Y	Y	F, P	?	?	?	N
Quote and/or comment	The project was reviewed and approved by the Regional Committees for Medical and Health Research Ethics in Norway.	The nurses connected to the project recruited participants by providing oral and written information specially adapted for this patient group.	They also assessed residents' capacity to provide informed consent for participation. Participants gave nurses oral consent and next-of-kin provided written informed consent.	Comment: No detailed information.	Comment: No information.	Comment: No information.	
Kuwamura et al., 2016 [8]	Y	Y	F, H	?	?	?	N

Reference	Was ethical approval obtained?	Was informed consent obtained?	Who provided informed consent?	How was informed consent obtained regarding procedures?	Was ongoing consent/assent obtained?	How was ongoing consent/assent obtained regarding procedures?	Were ethical issues discussed by the authors?
Quote and/or comment	This experiment was approved by the Human Ethics Committee of the Graduate School of Human Sciences, Osaka University (No. 26-60), and the Ethics Committee of the Advanced Telecommunications Research Institute International (No. 14-602-3).	Informed consent was obtained from the group home manager, the doctor in charge, and the participant families.	Informed consent was obtained from the group home manager, the doctor in charge, and the participant families.	Comment: No detailed information.	Comment: No information.	Comment: No information.	
Moyle et al., 2016 [9]	Y	Y	L	?	Y	?	N
Quote and/or comment	The Griffith University Human Research Ethics Committee gave approval for the study,	Informed consent was sought from the person's guardian and assent was sought from each participant at the time of each session.	Informed consent was sought from the person's guardian and assent was sought from each participant at the time of each session.	Comment: No detailed information.	Informed consent was sought from the person's guardian and assent was sought from each participant at the time of each session.	Comment: No detailed information.	
Bemelmans et al., 2015 [10]	Y	Y	L	?	Y	?	N
Quote and/or comment	This study was approved by the Dutch governmental Medical Ethical Commission,	Legal representatives of the eligible participants received an information letter. If no signed informed consent was obtained from the legal representatives, participants were excluded.	If no signed informed consent was obtained from the legal representatives, participants were excluded. Participants themselves, or via their legal representatives, could leave the study at any time for any reason if they wished to do so, without any consequences.	Comment: No detailed information.	Rejection of the intervention, to be recognized by the care staff, had to be honored immediately whereupon the session had to be terminated smoothly. The medical team could further decide to withdraw a subject from the study for urgent medical reasons.	Comment: No detailed information.	
Gustafsson et al., 2015 [11]	Y	Y	F, P	?	?	?	N
Quote and/or comment	The Regional Ethical Board in Uppsala, Sweden (2012/098), approved the study and informed consent was obtained from all participants.	Informed consent for all individuals with dementia was collected from their relatives.	Informed consent for all individuals with dementia was collected from their relatives. In cases in which the participants were not able to understand and make decisions, the individual with power of attorney gave informed consent on their behalf.	Comment: No detailed information.	Comment: No information.	Comment: No information.	
Jøranson et al., 2015 [12]	Y	Y	F, P	?	?	?	N

Reference	Was ethical approval obtained?	Was informed consent obtained?	Who provided informed consent?	How was informed consent obtained regarding procedures?	Was ongoing consent/assent obtained?	How was ongoing consent/assent obtained regarding procedures?	Were ethical issues discussed by the authors?
Quote and/or comment	The project was reviewed and approved by the Regional Committees for Medical and Health Research Ethics in Norway.	Local nurses attached to the project gave potential participants, staff, and relatives oral and written information about the project, stating that participation was voluntary and that confidentiality would be maintained. They recruited participants and assessed their ability to perform informed consent for participation. Participants gave oral consent and next-of-kin gave informed written consent.	They recruited participants and assessed their ability to perform informed consent for participation. Participants gave oral consent and next-of-kin gave informed written consent.	Comment: No detailed information.	Comment: No information.	Comment: No information.	
Valenti Soler et al., 2015 [13]: Nursing home	Y	Y	F, L, P	?	?	?	N
Quote and/or comment	All the participants, and their legal guardians or families, received information and signed an informed consent form approved by the CIEN Foundation Ethical Committee.	All the participants, and their legal guardians or families, received information and signed an informed consent form approved by the CIEN Foundation Ethical Committee.	All the participants, and their legal guardians or families, received information and signed an informed consent form approved by the CIEN Foundation Ethical Committee.	Comment: No detailed information.	Comment: No information.	Comment: No information.	
Valenti Soler et al., 2015 [13]: Day care center	Y	Y	F, L, P	?	?	?	N
Quote and/or comment	All the participants, and their legal guardians or families, received information and signed an informed consent form approved by the CIEN Foundation Ethical Committee.	All the participants, and their legal guardians or families, received information and signed an informed consent form approved by the CIEN Foundation Ethical Committee.	All the participants, and their legal guardians or families, received information and signed an informed consent form approved by the CIEN Foundation Ethical Committee.	Comment: No detailed information.	Comment: No information.	Comment: No information.	
Moyle et al., 2013 [14]	Y	Y	F, L	?	?	?	N
Quote and/or comment	The university human research ethics committee gave approval for the study.	Informed consent was sought from both the participant (individual with dementia) and the person legally permitted to give consent on his or her behalf.	Informed consent was sought from both the participant (individual with dementia) and the person legally permitted to give consent on his or her behalf.	Comment: No detailed information.	Comment: No information.	Comment: No information.	
Sant'Anna et al., 2012 [15]	?	Y	F	?	?	?	N

Reference	Was ethical approval obtained?	Was informed consent obtained?	Who provided informed consent?	How was informed consent obtained regarding procedures?	Was ongoing consent/assent obtained?	How was ongoing consent/assent obtained regarding procedures?	Were ethical issues discussed by the authors?
Quote and/or comment	Comment: No information.	Leurs aidants naturels (famille proche) ont signé des consentements éclairés.	Leurs aidants naturels (famille proche) ont signé des consentements éclairés.	Comment: No detailed information.	Comment: No information.	Comment: No information.	

?, no (detailed) information; H, health professional; N, no; F, family member, next-of-kin, informal caregiver; L, legal representative, guardian; P, person with dementia; Y, yes, reported.
For reasons of data extraction, verbatim quotes have been shortened.

REFERENCES

[1] Demange M, Lenoir H, Pino M, Cantegreil-Kallen I, Rigaud AS, Cristancho-Lacroix V (2018) Improving well-being in patients with major neurodegenerative disorders: differential efficacy of brief social robot-based intervention for 3 neuropsychiatric profiles. *Clin Interv Aging* **13**, 1303–1311.

[2] Moyle W, Jones C, Murfield J, Thalib L, Beattie E, Shum D, O'Dwyer S, Mervin MC, Draper B (2018) 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. *Maturitas* **110**, 10–17.

[3] Liang A, Piroth I, Robinson H, MacDonald B, Fisher M, Nater UM, Skoluda N, Broadbent E (2017) A pilot randomized trial of a companion robot for people with dementia living in the community. *JAMDA* **18**, 871–878.

[4] Moyle W, Jones CJ, Murfield JE, Thalib L, Beattie ER, Shum DK, O'Dwyer ST, Mervin MC, Draper BM (2017) Use of a robotic seal as a therapeutic tool to improve dementia symptoms: A cluster-randomized controlled trial. *JAMDA* **18**, 766–773.

[5] Petersen S, Houston S, Qin H, Tague C, Studley J (2017) The utilization of robotic pets in dementia care. *J Alzheimers Dis* **55**, 569–574.

[6] Rouaix N, Retru-Chavastel L, Rigaud A-S, Monnet C, Lenoir H, Pino M (2017) Affective and engagement issues in the conception and assessment of a robot-assisted psychomotor therapy for persons with dementia. *Front Psychol* **8**, 950.

[7] Jøranson N, Pedersen I, Rokstad AMM, Ihlebæk C (2016) Change in quality of life in older people with dementia participating in Paro-activity. *J Adv Nurs* **72**, 3020–3033.

[8] Kuwamura K, Nishio S, Sato S (2016) Can we talk through a robot as if face-to-face? Long-term fieldwork using teleoperated robot for seniors with Alzheimer's disease. *Front Psychol* **7**, 1066.

[9] Moyle W, Jones C, Sung B, Bramble M, O'Dwyer S, Blumenstein M, Estivill-Castro V (2016) What effect does an animal robot called CuDDler have on the engagement and emotional response of older people with dementia? A pilot feasibility study. *Int J Soc Robot* **8**, 145–156.

[10] Bemelmans R, Gelderblom GJ, Jonker P, Witte L de (2015) Effectiveness of robot paro in intramural psychogeriatric care: A multicenter quasi-experimental study. *JAMDA* **16**, 946–950.

[11] Gustafsson C, Svanberg C, Mullersdorf M (2015) Using a robotic cat in dementia care: A pilot study. *J Gerontol Nurs* **41**, 46–56.

[12] Jøranson N, Pedersen I, Rokstad AMM, Ihlebæk C (2015) Effects on symptoms of agitation and depression in persons with dementia participating in robot-assisted activity: A cluster-randomized controlled trial. *JAMDA* **16**, 867–873.

[13] Valenti Soler M, Aguera-Ortiz L, Olazaran Rodriguez J, Mendoza Rebolledo C, Perez Munoz A, Rodriguez Perez I, Osa Ruiz E, Barrios Sanchez A, Herrero Cano V, Carrasco Chillon L, Felipe Ruiz S, Lopez Alvarez J, Leon Salas B, Canas Plaza JM, Martin Rico F, Abella Dago G, Martinez Martin P (2015) Social robots in advanced dementia. *Front. Aging Neurosci.* **7**, 133.

[14] Moyle W, Cooke M, Beattie E, Jones C, Klein B, Cook G, Gray C (2013) Exploring the effect of companion robots on emotional expression in older adults with dementia: A pilot randomized controlled trial. *J Gerontol Nurs* **39**, 46–53.

[15] Sant'Anna M, Morat B, Rigaud AS (2012) Adaptabilité du robot Paro dans la prise en charge de la maladie d'Alzheimer sévère de patients institutionnalisés. *NPG Neurol Psychiatr Gériatr* **12**, 43–48.