An RCT assessing the effects of varying exposure times of therapeutic communication robots on dementia in group homes in Japan

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Figure 1. PARO

Background:
-Japan faces challenges with an aging population and a shortage of caregivers.
-There is keen interest in communication robots like PARO for dementia care.
-In the U.S., PARO has been approved as a medical device.
-Considering clinical usage of PARO in Japan, current scarcity for strong evidence such as RCT hopes to aid in effective application.

Methods:
-Cluster randomized trial where group homes were assigned to use PARO either once a week or three times a week for one-hour sessions.
-PARO was placed in communal areas for participants to interact with freely, with no caregiver encouragement.
-Changes in BPSD severity and caregiver burden were assessed using a linear mixed model, with primary outcomes measured using the Neuropsychiatric Inventory brief Questionnaire (NPI-Q).

Results:
-91 participants were recruited, with 85 included in the analysis.
-The group using PARO three times a week showed improvement in severity scores post-intervention, but differences between once-weekly and three-times-weekly groups were not statistically significant.
-Caregiver burden score significantly improved in the three-times-weekly group compared to the once-weekly group.

Conclusions:
-Using PARO once a week for one month did not significantly affect BPSD severity or caregiver burden. Three times a week usage reduced caregiver burden significantly. –
-Improvement in the severity score was clinically valuable but statistically not significant, suggesting a need for longer intervention periods.
-Short-term use of PARO may reduce caregiver burden and potentially enhance care quality in group homes.

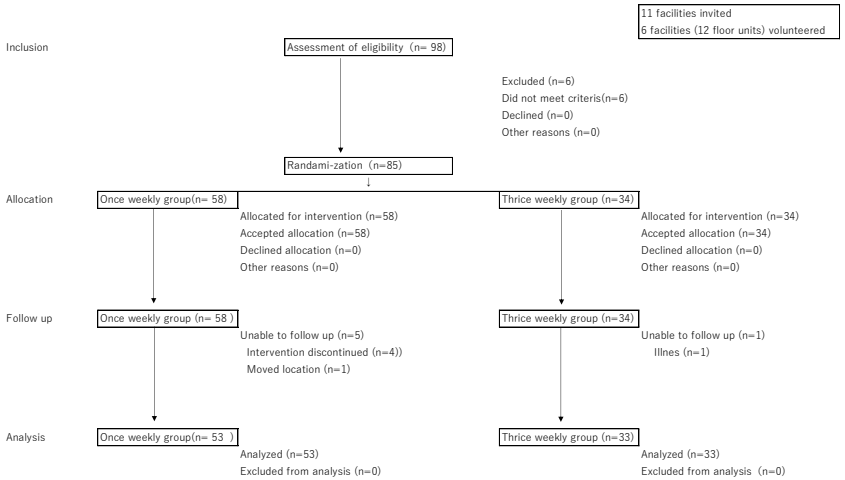

Figure 2. Flow Diagram

Table 2. Change in outcome measure Pre and post intervention, Comparison between groups (one-weekly VS thrice-weekly group)

	Group A: Once-weekly (n=53)				Group B: Thrice-weekly(n=32)				Difference (Group B - A)			
	LS mean	95%CI		P-value	LS mean	95%CI		P-value	**LS mean**	**95%CI**		**P-value**
NPI Severity Score												
Pre	8.428	5.916 ,	10.940	-	5.487	2.013 ,	8.961	-				
Post	8.654	6.142 ,	11.166	-	3.737	0.263 ,	7.211	-				
Amount of change	0.226	-1.076 ,	1.528	0.730	-1.750	-3.426 ,	-0.074	0.041	**-1.976**	**-4.099 ,**	**0.146**	**0.068**
NPI Caregiver Burden Score												
Pre	9.324	5.641 ,	13.006		5.818	0.712 ,	10.925					
Post	9.833	6.150 ,	13.516		3.037	-2.070 ,	8.144					
Amount of change	0.509	-1.312 ,	2.331	0.579	-2.781	-5.125 ,	-0.437	0.021	**-3.291**	**-6.259 ,**	**-0.322**	**0.030**

Table 1. The Baseline demographic and clinical characteristics for each group

		Once weekly group (n=53)	Thrice weekly group (n=32)
Sex	Female	44	31
	Male	9	1
Age	Youngest	65	78
	Oldest	99	98
	Average	86.8	87.8
	tandard deviation	7.67	4.92
Care level	Care level 1	7	6
	Care level 2	9	10
	Care level 3	20	11
	Care level 4	6	2
	Care level 5	11	3
Level of independence in daily living for	Ⅰa	0	0
	Ⅰb	0	0
	Ⅱa	3	0
	Ⅱb	17	7
	Ⅲa	11	11
	Ⅲb	9	6
	Ⅳ	12	6
	M	1	0
Independence in daily living of the elderly with	J1	0	0
	J2	6	2
	A1	17	15
	A2	11	9
	B1	4	4
	B2	10	2
	C1	1	0
	C2	4	0
Diagnosis	Alzheimer's disease	19	23
	Juvenile-onset Alzheimer's disease	1	0
	Vascular dementia	3	0
	Lewy body dementia	0	2
	Frontotemporal dementia	1	0
	Demenia	26	5
	Not known	3	2