Non-Pharmacological Approaches for Improving Lives of Older Adults living with Cognitive Impairment

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Background

- To improve health and well-being of persons living with dementia and their caregivers using music-based approaches.

Background

- Between 25 and 44% of older adults living with dementia have symptoms of sleep disturbances (Deschenes & McCurry, 2009; Vitiello & Borson, 2001)

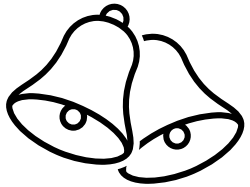
- Negative consequences of bothersome sleep symptoms in persons living with dementia include poor quality of life, cognitive dysfunction and accelerated disease progression (Hodgson, Gitlin & Huang, 2014; Yaffe, Falvey & Hoang, 2014; Rabins et al., 2013)

Background

- Interventions targeting insomnia symptoms in persons living with dementia to date have limitations
- Music listening interventions have shown promise in improving sleep quality in primarily healthy older adults (Shum et al., 2014; Wang et al., 2016)
- Music engagement is possible in dementia
- Limited evidence for tailored music interventions to improve sleep in persons living with dementia (Petrovsky et al., 2021)

Methods

- Wait-list randomized clinical trial 33 dyads of community-dwelling older adults (60+) and their caregivers
- 4 week, 30 minutes a day at bedtime
- Music selections are tailored based on personal preferences and sleep-inducing characteristics
- **Aims**
  - feasibility (i.e., recruitment/retention rates)
  - acceptability (survey and interviews)
  - preliminary efficacy (actigraphy and survey sleep data)



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Petrovsky, Gooneratne, Bradt, Gitlin & Hodgson, 2020. RINAH DOI: 10.1002/nur.22081

Methods

- **Inclusion**: age 60 and older, diagnosis of dementia or self-reported memory impairment, presence of sleep problems, tolerates wearing an actigraph, sufficient English to fill out the questionnaires
- Caregivers were included if they provided at least 4 h of daily care and lived with the older adult, able to read and speak in English
- **Exclusion**: planned transition to an institutional care setting < 3 months, hearing impairment, presence of extrapyramidal symptoms
- Analysis: mostly descriptive

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Methods

TABLE 4 Sleep measures

Name (definition)	Role in analysis
Sleep latency (the time it takes a person to fall asleep starting from the first intention to sleep)	Primary (efficacy)
Wake after sleep onset (time awake during the night, beginning from the time person falls asleep)	Secondary (efficacy)
Total sleep duration (actual time person is asleep)	Secondary (efficacy)
Sleep diary (Monk et al., 1994)	Reconciliation with actigraphy data (efficacy)
Neuropsychiatric Inventory sleep item (Cummings et al., 1994)	Screening
PROMIS sleep-related impairment–SF 8a (Yu et al., 2012)	Efficacy outcome
Sleep disorders inventory (SDI; Tractenberg et al., 2003)	Screening, efficacy

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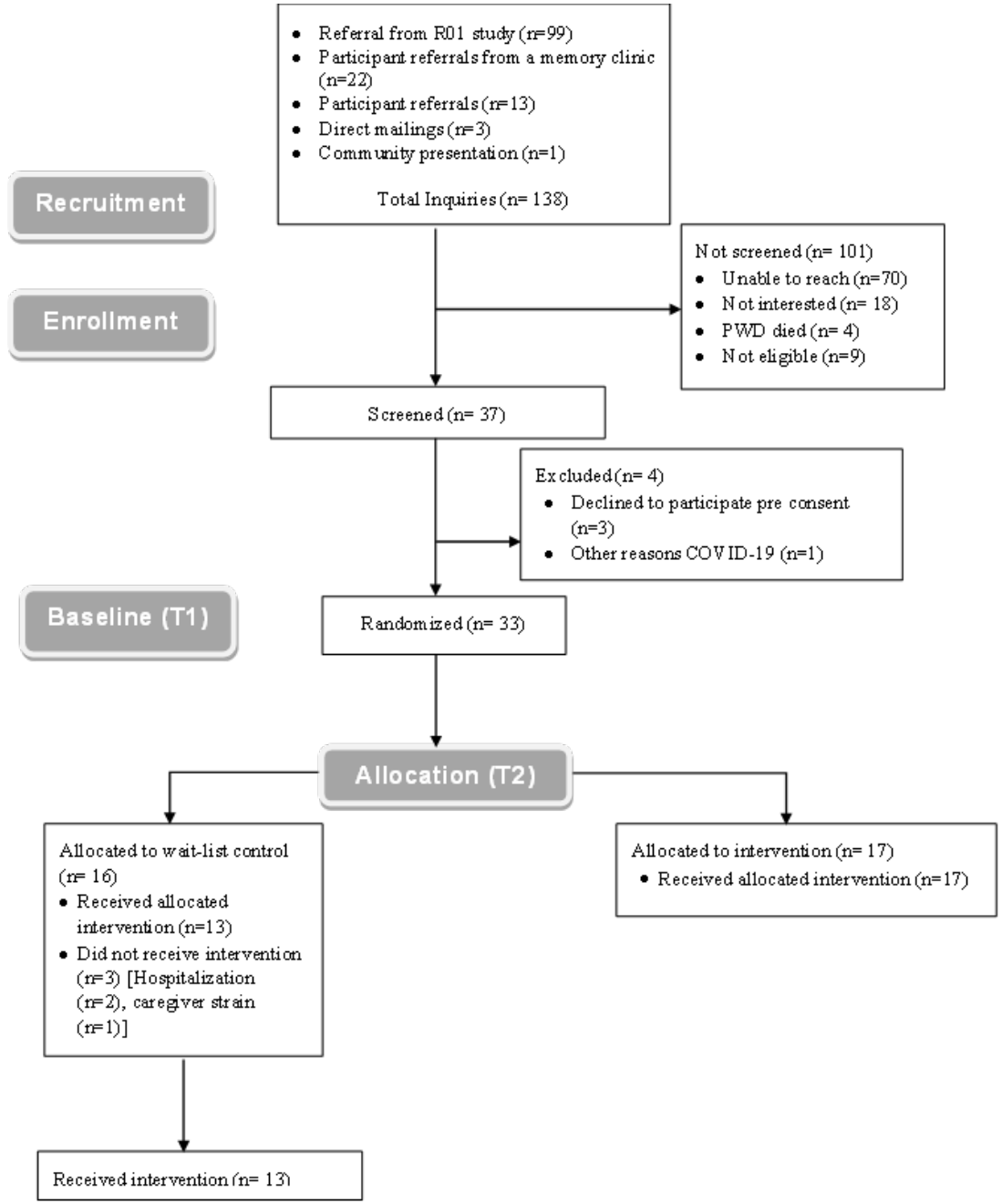

Recruitment
Referral from R01 study (n=99)
Participant referrals from a memory clinic (n=22)
Participant referrals (n=13)
Direct mailings (n=3)
Community presentation (n=1)
Total Inquiries (n= 138)
Enrollment
Not screened (n= 101)
Unable to reach (n=70)
Not interested (n= 18)
PWD died (n= 4)
Not eligible (n=9)
Screened (n= 37)
Excluded (n= 4)
Declined to participate pre consent (n=3)
Other reasons COVID-19 (n=1)
Baseline (T1)
Randomized (n= 33)
Allocation (T2)
Allocated to wait-list control (n= 16)
Received allocated intervention (n=13)
Did not receive intervention (n=3) [Hospitalization (n=2), caregiver strain (n=1)]
Allocated to intervention (n= 17)
Received allocated intervention (n=17)
Received intervention (n= 13)

Results

	Overall (N=33)	Control (n=16)	Intervention (n=17)	
Source of recruitment				0.82
R01 study referral	20 (60.6%)	9 (56.3%)	11 (64.7%)	
From another participant	9 (27.3%)	4 (25.0%)	5 (29.4%)	
Other	3 (9.1%)	2 (12.5%)	1 (5.9%)	
Flyer	1 (3.0%)	1 (6.3%)	0	

Results

	Overall (N=33)	Control (N=16)	Intervention (N=17)	p-value
Person Living with Dementia				
Sex				0.46
Female	**24 (72.7%)**	11 (68.8%)	13 (76.5%)	
Male	9 (27.3%)	5 (31.3%)	4 (23.5%)	
Education				0.58
Less than 9 years	3 (9.4%)	1 (6.7%)	2 (11.8%)	
High School	11 (34.4%)	6 (40.0%)	5 (29.4%)	
Some College	**12 (37.5%)**	5 (33.3%)	7 (41.2%)	
College	4 (12.5%)	1 (6.7%)	3 (17.6%)	
Graduate degree	2 (6.3%)	2 (13.3%)	0	
Missing	1	1	0	
Ethnicity				0.52
Not Hispanic or Latino	**32 (97.0%)**	16 (100%)	16 (94.1%)	
Hispanic or Latino	1 (3.0%)	0	1 (5.9%)	
Race				0.30
White	6 (18.2%)	4 (25.0%)	2 (11.8%)	
Black or African American	**27 (81.8%)**	12 (75.0%)	15 (88.2%)	
Age				0.25
Mean (SD)	**71.7 (7.1)**	72.8 (7.3)	70.7 (7.1)	
Min, Max	60, 90	62, 90	60, 89	
Clinical Dementia Rating				0.39
0.5	**26 (78.8%)**	11 (68.8%)	15 (88.2%)	
1	4 (12.1%)	3 (18.8%)	1 (5.9%)	
2	3 (9.1%)	2 (12.5%)	1 (5.9%)	

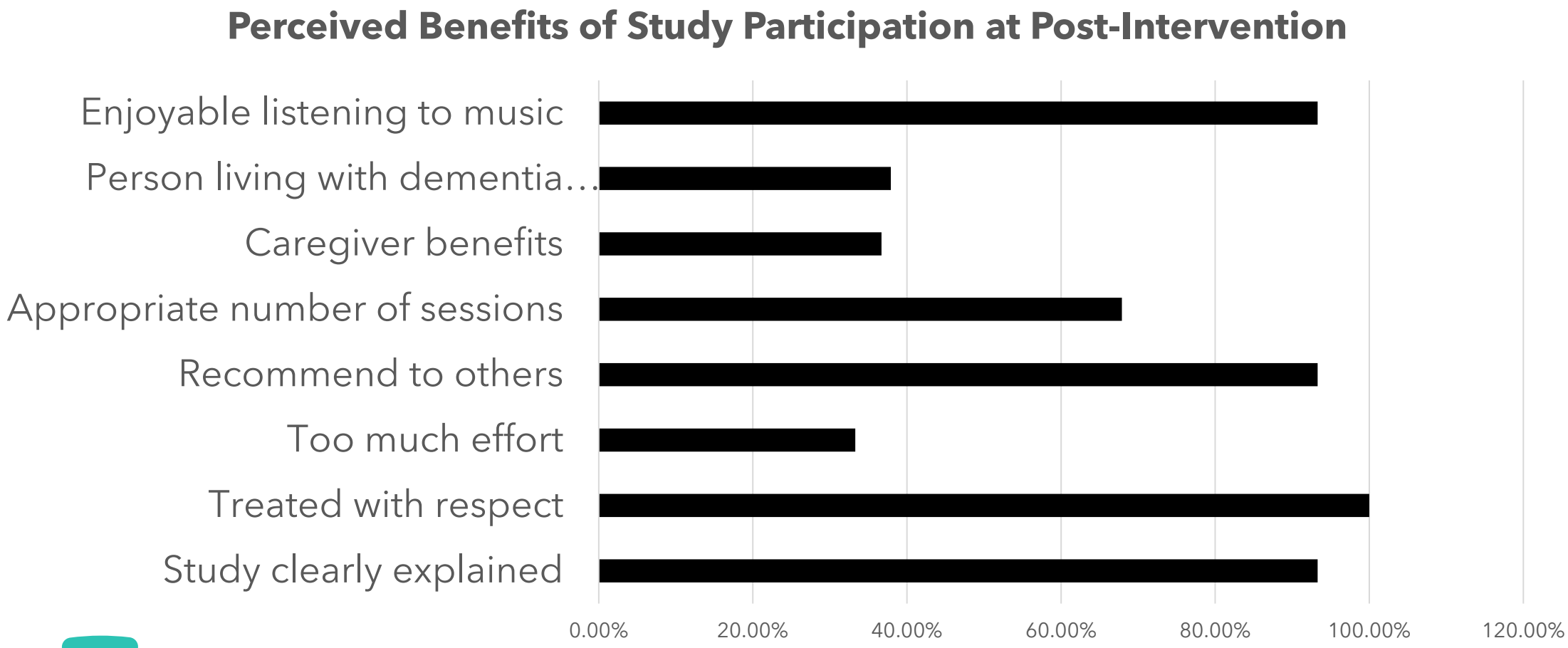
Results

	Overall (N=33)	Control (n=16)	Intervention (n=17)	
Caregiver				
Sex				0.46
Female	**24 (72.7%)**	11 (68.8%)	13 (76.5%)	
Male	9 (27.3%)	5 (31.3%)	4 (23.5%)	
Age				0.33
Mean (SD)	**58.4 (16.7)**	63.1 (13.5)	53.9 (18.6)	
Min, Max	21, 92	42, 92	21, 79	
Education				0.58
Less than 9 years	1 (3.1%)	0	1 (5.9%)	
High School	**13 (40.6%)**	5 (33.3%)	8 (47.1%)	
Some College	11 (34.4%)	5 (33.3%)	6 (35.3%)	
College	5 (15.6%)	3 (20.0%)	2 (11.8%)	
Graduate degree	2 (6.3%)	2 (13.3%)	0	
Missing	1	1	0	
Ethnicity				0.77
Not Hispanic or Latino	**31 (93.9%)**	15 (93.8%)	16 (94.1%)	
Hispanic or Latino	2 (6.1%)	1 (6.3%)	1 (5.9%)	
Race				0.47
Black or African American	**28 (84.8%)**	13 (81.3%)	15 (88.2%)	
White	5 (15.2%)	3 (18.8%)	2 (11.8%)	
Dyad relationship				0.20
Child	**10 (30.3%)**	6 (37.5%)	4 (23.5%)	
Friend	9 (27.3%)	4 (25.0%)	5 (29.4%)	
Spouse	8 (24.2%)	6 (37.5%)	2 (11.8%)	
Other	6 (18.2%)	0	6 (35.3%)	

Results - Feasibility

RATE	NUMBER OF DYADS	%
Screening	37 out of 138	26
Enrollment	33 out of 37	89.1
Attrition	3 out of 33	9
Recruitment (dyads per month)	3	-

Results - Acceptability



Results – Qualitative Findings

- Dyads reported that listening to music was largely acceptable and helped them relax.
- Need to (i) improve technology that delivered tailored music to be more user friendly, and (ii) find ways to decrease caregiver burden associated with data collection.

Results – Quantitative Findings

Variable	Control (n=16)	Intervention (n=17)	
	Mean Change (T2-baseline)		P-value
Sleep latency (min)	-17.8	-7.6	0.09
Wake after sleep onset (min)	-22.7	-2.23	0.14
Total sleep duration (min)	-27.7	2.48	0.44
PROMIS Sleep Impairment	-0.3	-1.59	0.44
Sleep disorders inventory	-0.15	-0.11	0.32

Discussion

- Listening to music was a feasible and acceptable approach in our study
- Need to improve technology that delivered tailored music to be more user friendly and decrease caregiver burden
- Low rate of perceived benefit may be attributed to caregivers not seeing the immediate benefits of listening to music in older adults living with dementia
- Music is a social and cultural phenomenon
- Community engagement is critical to participant recruitment

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