Behavioral and Psychological Symptoms in Dementia in Hong Kong Chinese

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Abstract

Behavioral and psychological symptoms of dementia (BPSD) constitute an integral component of cognitive impairment including, vascular dementia. They could contribute significantly not to caregiver stress but also to escalating healthcare costs.

Introduction:

The World Health Organization estimated that around 50 million people worldwide are living with dementia in 2017 with nearly 10 million new cases every year. With its ever-increasing prevalence dementia has become an important cause of disability and dependency among elderly. A survey in Hong Kong has found that one in every three people over 85 years has dementia. The aging population together with the longest life expectancy in the world highlight the significance of dementia in the Chinese context. The hallmark of the disorder is a decline in cognitive abilities and often accompanied by various behavioral and psychological symptoms of dementia (BPSD) including agitation aberrant motor behavior, irritability, and dysphoria. The BPSD reflect a decrement in the elderly's well-being and place considerable impact on their caregivers and families. Existing pharmacological treatments for managing BPSD has shown considerable side effects such as accelerated cognitive decline, drowsiness and increased fall risks and could result in increased long-term dependency. Similarly physical restraint use has been associated with such adverse effects as feelings of shame, loss of dignity, and functional and cognitive decline. It is increasingly recognized that non-pharmacological treatments should be pursued for helping people with BPSD Examples of such treatments include reminiscence and art therapy. A systematic review has found supportive evidences for the use of personalized pleasant activities and reminiscence therapy to improve agitation and mood. Music intervention has been recommended as a clinical practice and is widely applied for patients with dementia.

Promote person-centred care for individuals with dementia. Despite the encouraging results of using these types of music intervention among elderly with dementia musical preferences are likely influenced by cultural factors and people tend to resonate with music from their own cultural tradition. This suggests the need to identify culturally appreciated music suitable for local Hong Kong elderly with dementia to maximize the effects of music intervention. As the sensory functioning of the elderly regresses, there is a greater need for sensory stimulation. Though traditional music intervention focuses on the hearing sense of the individual,

recent research advocates the use of multi-sensory stimulation for people with dementia. Is an Irish intervention that incorporates cognitive, sensory, and social stimulation on all five senses of touch, smell, taste, hearing, and sight. Existing studies on Sonas have revealed both null findings and significant improvements in behavioral and mood disturbance and communication skills in people with severe dementia. To the best of our knowledge, there have been few research studies that evaluate the effects of music intervention with multi-sensory stimulation components in managing BPSD in the Chinese context. The objective of the present study was to evaluate the effects of a music intervention with culturally sensitive and personalized music in improving subjective mood and BPSD in terms of agitation, aberrant motor behavior, irritability, and dysphoria in elderly with moderate dementia in Hong Kong

Method:

100 consecutive patients attending a Memory Clinic, located in a district hospital in Hong Kong diagnosed to have vascular dementia were reviewed. The National Institute of Neurological Disorders and Stroke Association Internationale pour la Recherche et I'Enseignement en Neurosciences (NINDS-AIREN) criteria were used to establish the diagnosis of vascular dementia. The Global Deterioration Scale (GDS) was used to stage the severity of the disease. The assessment of BPSD was based on collateral clinical history, patients' subjective experiences and objective behavior. Neuropsychiatric Inventory was adopted as the assessment tool.

Intervention:

The intervention was a music group conducted in an activity room in the residential homes held in late afternoon from 3pm to 5pm. Each intervention included eight participants seating in a circle with two facilitators. The facilitators were a trainee from a local expressive arts therapy master program and a social worker from the residential homes. The intervention began with a check-in to address the group purpose, time and date, and each member of the group was individually greeted by name. This was followed by a breathing exercise with relaxation music/massage as warm up to stimulate the sense of touch. The main part consisted of four familiar Cantonese pop songs from the 1950s to the 1970s and an extract of a Chinese opera song. The first song served as the hello song, during which the facilitators would greet and engage each group member individually, and would lead them to perform simple hand-movement exercises. While listening to the music, the participants were encouraged to continue to make free movements in response to the content or the rhythm of the music. Props such as pictures, percussion instruments, and

flowers were used to enhance engagement and facilitate multi-sensory stimulation of the experience via vision and smell. The intervention created a multi-sensory environment which encouraged social interaction among the group members. Participants could choose to sing along or dance with the music if they felt comfortable. The participants were given complete freedom to engage or move as much as they desired. A brief pause was introduced between each piece of music, during which the facilitator would encourage the participants to share their thoughts, ideas, and feelings about the song they had just heard, if desired. Near the end of the session, the participants performed another breathing exercise supported by relaxation background music; a closing song and signature tune was then

Two song lists were used alternately throughout the 16 sessions. The two pieces of relaxation music, the hello and goodbye songs were kept consistent, but the two lists differed in the four songs in the main portion. The minor differences in the main contents of the session helped maintain the attention and concentration of the members and allowed them to distinguish between the two days of the week that the sessions were held depending on the song list used.

Treatments were conducted by five master-level expressive arts therapy trainees and five registered social workers. A 3-hour training session was provided to all of the facilitators before commencement of the project in which rationale and conception of music therapy as well as techniques and skills in conducting group music intervention were introduced. Treatments were described in detailed session-by-session protocols to maintain treatment fidelity. Adherence to the protocol was ensured via regular supervision contacts with the first and the fourth author (RTH Ho and PHT Lee), who were both experienced expressive arts therapists. There were no changes in medication, drop-outs or deaths during the course of the study. Statistical analysis Analysis of variance and chi-square tests were used to compare the demographic profiles of the groups at baseline. The present study examined the effects of music intervention via latent growth modeling in. The robust maximum likelihood estimator was used to account for potential deviation from normality. Latent growth modeling analyzes the overall trajectories and allows non-linear growth in the study variables.

Missing data were handled via full information maximum likelihood under the missing-at-random assumption allowing standard intent-to-treat analyses. The 2-month growth trajectories were fitted for the five (T0 – T4) measurements of each variable with the latent intercept and slope factors denoting the baseline status and change over time, respectively. Quadratic growth factors that were statistically significant were added into the models to better fit the trajectory shape. Model fit was assessed based on the following criteria insignificant χ^2

($p > 0.05$), comparative fit index (CFI) ≥ 0.95, Tucker-Lewis index (TLI) ≥ 0.95, root-mean-square error of approximation (RMSEA) ≤ 0.06, and standardized root-mean-square residual (SRMR) ≤ 0.06. The overall level of statistical significance was set at $p = 0.05$. Effect sizes of the treatment were denoted by the standardized intervention effects with cut-off of 0.2, 0.5, and 0.8 representing small, moderate, and large magnitudes. The study dataset could be obtained from the corresponding author upon email request.

Results:
62% were GDS stage and 38% stage 5. About 91% of stage 5 patients had BPSD and 8% in stage 4 patients. The prevalence of BPSD was about 40%. Amongst these, the pattern of various domains reviewed: individual behaviors include delusion (20%), hallucination (12%), depression (42%), apathy (21%), anxiety (16%), elation (12%), disinhibition (8%), aggression (11%), irritability (13%), aberrant motor behavior (11%), sleep and nighttime behavioral disorders (26%) and eating disorders (19%).

Conclusion:
BPSD are frequent in vascular dementia of mild-to-moderate severity like other types of dementia, correct identification and evaluation of these symptoms is a crucial component of the clinical approach to vascular dementia.

Discussion:
Behavioral and psychological symptoms of dementia are common people living with dementia and pose considerable management challenge for clinicians. Pharmacological treatment can provide modest short-term beneficial effects but yield little longer-term benefits. Given the potential adverse side-effects of the antipsychotic medications, psychosocial interventions have been advocated as a first-line management strategy of BPSD to reduce the use of medications. This study evaluated the effects of a music-based intervention in managing BPSD among Chinese elderly with dementia in residential homes. A recent Cochrane review on 16 music-based intervention studies with 620 institutionalized elderly with dementia found significant reduction effects for dysphoria but not for agitation, anxiety, or other behavioral problems. In the present study the intervention group showed significant improvement in agitation, aberrant motor behavior and dysphoria but not irritability and subjective mood compared to the control group. Our results agree partly with the Cochrane review and other studies on preferred music and may be attributed to the following reasons.