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Multi-Sensory Motor Interventions for Behavior Management of Individuals with Dementia in Residential Care

Search Terms: Dementia AND sensory motor AND elderly; Dementia AND interventions AND recreation AND long term care; Dementia AND snoezelen AND behavior AND nursing home; Dementia AND recreation AND agitation AND nursing home; Dementia AND sensory AND prevention AND agitation AND nursing home Dementia AND interventions AND agitation AND nursing home; Dementia AND multi-sensory AND behavior AND interventions; Dementia AND group AND interactions AND nursing home; Sensory AND stimulation AND behavior AND geriatric; Sensory stimulation AND geriatric AND behavior

Years: 1999-2012

Databases: Academic Search Premier, CINAHL, EBSCOhost, ERIC, Hospitality & Tourism, Medline, PsychArticles, PsychInfo, Psychology & Behavioral Sciences, PubMED, Social Science Citation, Social Work Abstracts, & SPORTDiscus

Number of Articles: 9

Summary of Research Findings:

Due to the aging process, older adults typically experience a reduction in sight, sound, taste, smell, and touch (Baker et al., 2003). For individuals with dementia, the reduction is even greater (Baker et al., 2003). According to Baker et al. (2001) individuals with dementia experience neuronal loses that lead to impaired processing of sensory stimuli. This sensory deprivation can then result in unhappiness, annoyance, agitation, depression and other behavioral problems (Baker et al., 2001; Milev et al. 2008; Ward-Smith, Llanque& Curran, 2009). Consequently, the utilization of sensory stimulation interventions appears to be a viable intervention for behavioral management of older adults with dementia (Baker et al., 2001; Cohen-Mansfield et al., 2010; Ward-Smith, Llanque& Curran, 2009). A review of nine articles on different types of sensory stimulation interventions for behavior management of individuals with dementia in residential care yielded the identification of six particular interventions (each are defined below in Table 1). From the review conducted, particular interventions were chosen more frequently for particular dementia populations and resulted in varied outcomes:

1. *Multi-Sensory Motor Stimulation (MSMS)* was more commonly used for general dementia and dementia with agitation resulting in less physical & verbal agitation and increased activity participation (Buettner, 1999; Cohen-Mansfield et al., 2010).

2. *Multi-Sensory Stimulation (MSS)* was used with individuals with Alzheimer's disease, moderate to severe dementia & general dementia resulting in more spontaneous speech, taking more initiative, relating better to others & becoming happy, active & alert (Baker eta al, 2001; Baker et al., 2003).

3. *Multi-Sensory Stimulation Environment (MSSE)* was used for individuals with Alzheimer's disease and general dementia resulting in decreased psychotic behaviors, aggressive behaviors, pacing/exit seeking, talking/yelling, refusal of food/medication and inappropriate toileting (Milev et al., 2008; Ward-Smith, Llangues & Curran, 2009).

4. *Multi-Sensory Behavior Therapy (MSBT) & Group Music Intervention (GMI)* were both utilized with individuals who had dementia with agitation (physical & verbal) resulting in reduced agitation and physical/verbal aggressive behaviors (Staal et al., 2007; Lin et al., 2011). The MSBT intervention additionally improved apathy and independence (Staal et al., 2007).

5. *Theory Based Activities (TBA)* was utilized with general dementia resulting in increased engagement, alertness & attentiveness (Kolanowski et al., 2011).

Individuals with dementia exhibit a variety of problem behaviors, including restlessness, repetitive behavior, verbal agitation, lethargic/ passivity, anxiety, wandering, general agitation & individuals with difficulty making needs known. Within the studies, particular sensory stimulation activities were utilized to assist with specific behaviors (see Table 2). For example, music activities and activities that incorporated the individual's personal style of interest were utilized to decrease agitated behavior. Along with specific activities, the review identified specific types of equipment/supplies used within sensory stimulation interventions, including textured balls, different musical selections, bubble column, light wheel, comfortable sitting, tactile boards, special lighting & aromas (see Table 3).

Overall, the review showed that appropriate sensory stimulation is vital to improve negative dementia-related behaviors of individuals residing in residential care settings (Baker et al., 2003). Most importantly, Kalanowski et al. (2011) & Cohen-Mansfield et al. (2010) both found in their studies that having activities that individuals with dementia could self-identify with was of major importance, as the utilization of such activities have the potential to prevent negative behavioral outcomes from poorly selected activities. Continued research related to sensory stimulation for this population is needed. Consequently, a list of assessment tools utilized within the studies is provided to assist with this endeavor (see Table 4).

Table 1

SENSORY INTERVENTIONS							
Interventions	**Description**	**Populations**				**Effects**	**Citations**
		Alzheimer's Disease	Moderate to Severe Dementia	Dementia with Agitation	Dementia (general)		
Group Music Intervention (GMI)	Listening to music (passive methods) and engagement in musical activities (active methods)			X		Decreased physical and verbal aggressive behaviors	Lin et al (2011)
Multi- Sensory Behavior Therapy (MSBT)	Integration of behaviorism and Snoezelen therapy (controlled multisensory environment)			X		Reduced agitation, increased apathy, increased independence	Staal et al., (2007)
Multi-Sensory Motor Stimulation (MSMS)	Using kinetic stimuli along with visual, auditory, olfactory, gustatory & tactile stimuli			X	X	Less physical & verbal agitation, activity participation increased	Buettner (1999); Cohen-Mansfield et al. (2010)
Multi-Sensory Stimulation (MSS)	Stimulating the senses through the provision of unpatterned visual, auditory, olfactory, gustatory & tactile stimuli	X	X		X	More spontaneous speech, related better to others, showed more initiative, less bored/inactive, more happy, active & alert	Baker et.al (2001); Baker et al (2003)
Multi- Sensory Stimulation Environment (MSSE)	The use of a controlled multisensory environment that is both soothing and stimulating during social interaction, recreation and leisure activities.	X			X	Decrease in psychotic behaviors, pacing/exit seeking, aggressive behavior, aggressive talking/yelling, refusal of food/medication, & inappropriate toileting	Milev et al (2008); Ward-Smith, Llangues & Curran (2009)
Theory Based Activities (TBA)	Sensory stimulation activities that are customized to each client's functional level, personality style of interest (an individual's long-standing disposition to gratify needs in a particular manner) or both functional level & personality style of interest				X	Increased engagement, increased alertness & attentiveness	Kolanowski et al (2011)

Table 2

ACTIVITY INTERVENTIONS NOTE: Four of the nine studies reviewed, indicated the types of activities utilized to address specific behaviors within the sensory interventions.		
Type of Behavior	Activities	Citations
Agitated Behavior	Rhythmical music, slow tempo instrumental activities, singing, glockenspiel (bells) activities, new age or pseudo-classical music activities adjusted to functional level & activities incorporating personal style of interest	Lin et al. (2011); Kolanowski et al. (2011); Baker et al.(2003)
Anxiety	Muffs & squeezies	Buettner (1999)
Difficulty making needs known	Message magnets	Buettner (1999)
Lethargic/passivity	Electronic busy box, home decorator books, picture dominoes	Buettner (1999)
Restlessness & repetitive behaviors	Activity apron/pillow, fishing box, flower arranging, hang the laundry, look inside purse/wallet, sewing cards, table cloth with activities, squeeze ball, tether ball, expanding sphere, building blocks, fabric books, wave machines	Buettner (1999); Cohen-Mansfield et al. (2010)
Verbal agitation	Latch box-doors, tetherball game, polar fleece hot water bottle, stuffed animal	Buettner (1999)
Wandering	Table ball game, look inside purse, hang the laundry,	Buettner (1999)

Table 3

EQUIPMENT/SUPPLIES NOTE: Four of the nine studies reviewed, indicated specific equipment and supplies utilized within the sensory interventions.	
Equipment	Citations
Textured ball, different musical selections, fiber optic cables, color changing water column, reclining chairs, books and blankets	Milev et al. (2008)
Bubble column, light wheel, vibrating pillows, fiber optic lights, aromatherapy, DVDS, comfortable seating, and wind chimes	Ward-Smith, Llanque & Curran (2009)
Bubble tubes, fiber-optic sprays, moving shapes across the walls, tactile boards of different textures: rough/smooth, warm/cold, and hard/soft	Baker et al. (2003)
Music, special lighting, aromas & special tactile objects	Baker et al. (2001)

Table 4

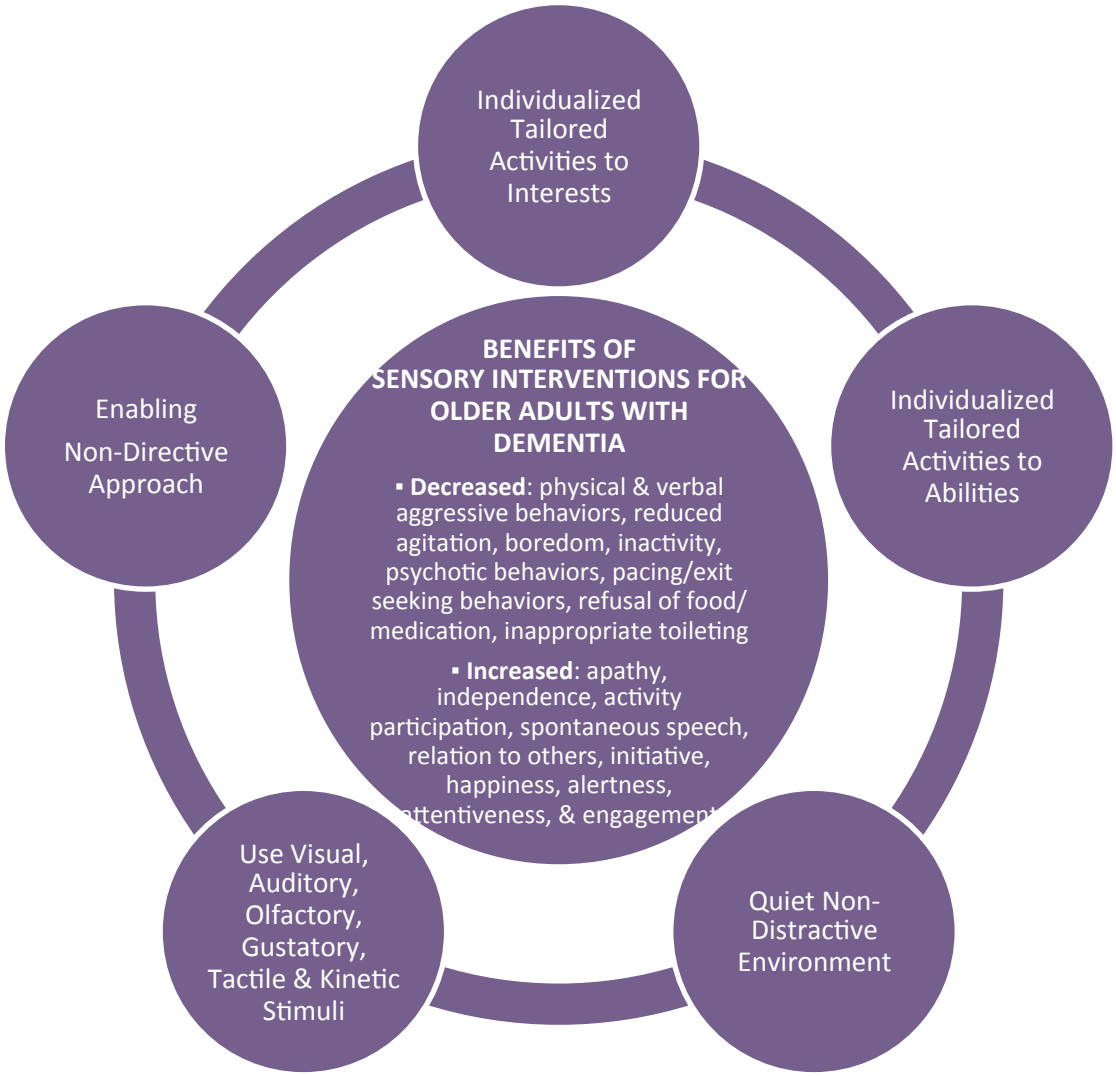
OUTCOME MEASUREMENT NOTE: If you are interested in measuring outcomes from sensory interventions for individuals with dementia, consider the below tools.		
Tool	Measures	Study that Utilized Tool
Agitation Behavior Mapping Instrument (ABMI)	Frequency of occurrence of 14 items describing problem behaviors , characterized as physical agitation or verbal or verbal agitation	Cohen-Mansfield (2010)
Behavior Rating Scale (BRS) part of Clifton Assessment Procedures for the Elderly (CAPE)	Assesses any change in behavior. 4 sub-scale: physical disability, apathy, communication, difficulties & social disturbance	Baker et al. (2003)
Clinical Global Impression-Improvement (CGI-I)	7 point scale that measures symptoms severity, treatment response and efficacy of treatments in treatment studies.	Milev et al. (2009)
Cohen- Mansfield Agitation Inventory (C-MAI)	Rates a subject's agitated behavior based on a questionnaire of 29 different behaviors	Buettner (1999); Kolanowski (2011) & Lin et al. (2011)
Daily Observation Scale (DOS)	A score of 1-8 is given (1= resident asleep in bed, 2= resident asleep in chair, 3= resident awake and calm, 4= resident agitated, 5 = resident in Life Enrichment Program, 6= resident engaged with other, 7= resident sitting alone and 8= resident alone in room); 5 & 6 were made into a new category with a score of 1 (active or engaged with others); 3, 7,8 were combined into a new category with a score of 2 (calm and awake); 1,2 and 4 were combined into a new category with a score 3 (sleep or agitated); 1 was the best outcome and 3 were less favorable.	Milev et al. (2009)
Dementia Mood Picture Test (DMPT)	An instrument that measures self-reported positive and negative moods: bad, good, angry, sad, happy, worried)	Kolanowski et al. (2011)
Global Deterioration Scale (GDS)	Measures the progression of Alzheimer's disease. This scale divides Alzheimer's disease into seven stages of ability.	Staal (2007)
Interact During	Devised to record behavior and mood during Multi-sensory stimulation and activity session. Has a 22 Likert Scale and was scored according to the frequency of occurrence of each behavior, ranging from 1, not at all to 5, nearly all the time.	Baker et al. (2001); Baker et al. (2003)
Katz Index of Activities of Daily Living (KI-ADL)	Assess functional status as a measurement of the client's ability to perform activities of daily living independently. Measures performance in six areas: bathing, dressing, toileting, transfer, continence and feeding. Patients are scored either a yes or no for independence. 6 =full function and 2 or less =severe impairment.	Staal et al. (2007)
Mini- Mental State Examination (MMSE)	30 point questionnaire that screens for cognitive impairment. Used to estimate the severity of cognitive impairment and test for cognitive changes.	Baker et al. (2001); Baker et al (2003); Buettner (1999); Cohen-Mansfield et al. (2010); Lin et al. (2011) & Staal et al. (2007)
Passivity in Dementia Scale (PDS)	An observational scale consisting of 40 behaviors: 11 passive items scored in the negative and 29 active items scored in the positive. Lower scores indicate greater passivity.	Kolanowski (2011)

Philadelphia Geriatric Center Affect Rating Scale (ARS)	An observational scale with descriptive indicators for six affective states : pleasure, anger, anxiety, depression or sadness, alertness or contentment	Kolanowski (2011)
Pittsburgh Agitation Scale (PAS)	Assessed agitation. There are four behavior areas measured on intensity level of 0-4: aberrant vocalizations, motor agitation, aggressiveness and resisting care.	Staal (2007)
Psychotic Behavior Assessment Record (PBAR)	Documents the presence and frequency of aggressive behaviors	Ward- Smith, Llangues & Curran (2009)
Rehabilitation Evaluation Hall and Baker (REHAB)	Assess the total level of patient disability. A 7 item section on deviant behavior: incontinence, violence, self-injury, sexually acts, absconding, verbal aggression & talking to self. 15 item section on general behavior and an overall: social activity, speech disturbance, self-care and community skills.	Baker et al. (2001); Baker et al (2003)
Scale for the Assessment of Negative Symptoms in Alzheimer's' Disease (SANSAD)	Measured negative symptoms in patients with dementia. This is a 16 item scale divided into 3 subscales: affective flattening or blunting, volition-apathy, & social emotional withdrawal. Each item rated on a 5 point scale.	Staal et al. (2007)
Scanning the Environment Tool	Time sampling of the environment for resident activity, coded to what exactly they were doing at that moment in time	Buettner (2001)
Self-Identity Questionnaire (SIQ)	Determine what roles were important and enjoyable to participate before the onset of dementia as well as what activities were currently enjoyed. Examines four types of role identity: professional, family role, leisure activities and personal attributes.	Cohen-Mansfield et al. (2010)

Knowledge Translation Plan:

From the review of the nine articles it can be yielded that the use of sensory intervention for individuals with dementia can have a positive effect on behavior and therefore can be an effective intervention to use in a skilled nursing facility (SNF). Although sensory interventions have proven to have positive effects it has been found that when the intervention does not continue, negative withdrawal effects may occur because the residents may become accustomed to receiving the stimulation the interventions provided and suffer poor outcomes when they are no longer available (Baker et al., 2001; Kolanowski et al., 2011). This implies that sensory interventions should be incorporated into daily programming rather than having a program that lasts only several weeks (Baker et al., 2001; Kolanowski et al., 2011; Lin et al., 2011). Along with having sensory interventions incorporated into daily programing, Baker et al. (2001) found that individuals with dementia received the most benefit when sensory interventions were structured on a one to one basis providing individualized attention; however, when working in a SNF it may not be realistic for Recreational Therapists to provide one to one attention to all individuals with dementia; working in small groups may be more efficient (Baker et al 2003). When engaging individuals in sensory interventions a non-directive enabling approach is best (allowing the individual to be in control of the session with no intellectual or intentional demands) (Baker et al. 2001). It is also beneficial to provide individualized meaningful activities based on the individual's interests and skills (both cognitive and physical); unfortunately, when poorly selected activities are chosen, negative outcomes may occur and the individual may become disengaged in the activity (Buettner 1999; Cohen-Mansfield et al., 2010; Kolanowski et al., 2011; Lin et al., 2011; Milev et al., 2011). Sensory interventions are best provided in a room especially designed for sensory interventions, including a variety of lights, stimulating music, aromas and tactile objects to stimulate kinetic, visual, auditory, olfactory, gustatory, and tactile stimuli; if this type of room is not available, a quiet non-distractive environment would be best (Baker et al., 2001; Baker et al., 2003; Buettner, 1999; Staal et al., 2005; Ward-Smith, Llangue & Curran 2009). It is also important to educate and train other staff members who

have contact with individuals with dementia, about how to interact with those individuals and use sensory interventions with them (Lin et al. 2011; Cohen-Mansfield et al., 2010; Staal et al., 2007). For example, Buettner (1999) provides examples of how staff members used the MSMS intervention in everyday living (e.g., nurse kept items on the medication cart to use as a diversion). Below is an illustration that reflects these findings to assist in designing sensory interventions for individuals with dementia residing in a SNF.



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