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CTP 004: Evidence-based Practice for Dementia Care

Ch 3. Therapeutic Interventions for Dementia

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CHAPTER THREE

Therapeutic Interventions for Dementia

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Cognitive and Psychosocial Interventions

WHO Recommends:

- Cognitive interventions applying principles of **reality orientation, cognitive stimulation and/or reminiscence therapy** may be considered in the care of people with dementia
- Health care providers should be **trained** for delivering these interventions
- **Family members** should be involved in delivery of these interventions

Cognitive and Psychosocial Interventions

Cognition-focused approaches

- Reminiscence Therapy
- Reality Orientation (RO)
- Cognitive Stimulation Therapy (CST)
- Cognitive Training

Emotion-focused approaches

- Validation Therapy (VT)

Stimulation and activity approaches

- Art therapy
- Music therapy
- Aromatherapy
- Animal-assisted therapy (AAT)
- Multisensory Stimulation

Cognition-Focused Approaches

1. Reminiscence Therapy
2. Reality Orientation (RO)
3. Cognitive Stimulation Therapy (CST)
4. Cognitive Training

Reminiscence Therapy

Reminiscence Therapy

- Involves the **discussion of past activities, events and experiences** with individuals with dementia and in small groups
- Uses **photographs, music, and archive recordings and items from the past** to prompt and stimulate a variety of personal memories
- Is effective in **reducing depressive symptoms** in older adults
- Is appropriate for people with mild to moderate degree of dementia
- Focuses on the person's strengths i.e. preservation of remote memory

Goals

- To increase communication and socialization
- To provide pleasure and entertainment
- To assist the person in achieving a sense of integrity

Reminiscence Therapy

Is it effective?

- Woods et al (2005) has shown that:
 - cognition improved
 - behavior improved
 - communication and interaction improved
 - well-being improved
 - carer strain decreased
 - staff knowledge of person with dementia improved

Reminiscence Therapy

Is it effective?

- Other studies have found that:
 - the **involvement of family caregivers** is a promising future development
 - the use of **individualized approach** e.g. **trips and activities that related to the person's interests and experiences** and detailed life histories have a major influence in care planning
 - people with dementia showed increased sociability, decreased aggression and less demanding behavior and that the **staff responded positively, recognizing more of the personhood of each individual** and so improving the quality of their interactions

Reminiscence Therapy

How does reminiscence therapy work?

<http://www.youtube.com/watch?v=P8qT29I7dK8>



Reality Orientation (RO)

Reality Orientation (RO)

- RO helps people deal with memory loss and disorientation by reminding them of facts about themselves and their environment
- A formal RO group session typically involves providing the **names of group members, the date, time and place of meeting**, current information and themes of interest, and these features are supported through the use of dairies, clocks, and information sheet
- A 24-hour approach involves a number of **changes to the environment**, with **clear sign-posting** being employed around the ward or home, extensive use of **notices** and other **memory aids**, and a consistent orientating approach by all staff

Reality Orientation (RO)

Goal

- To reduce the anxiety caused by mental disorientation of time, place, and people and the dependence caused by sense of helplessness

Is reality orientation effective?

- Spector et al (2000) has shown that:
 - **Cognition** improved
 - **Behavior** improved

Cognitive Stimulation Therapy (CST)

Cognitive Stimulation Therapy (CST)

- Involves taking part in activities and exercises that are designed to **improve your memory, problem-solving skills and language ability**
- Is recommended for people with mild to moderate dementia
- Is based on the principles of **person-centered care** i.e. treating people as unique individuals with their own personality and preferences
- In small and structured group sessions, a wide variety of activities and materials are used to engage the participants with their surroundings, to maintain contact with the wider world and to provide cognitive stimulation
- **Examples: Physical games, Sound, Childhood, Food, Current affairs, Faces / scenes, Word association, Being creative, Categorizing objects, Orientation, Using money, Number games, Word games, Team quiz**

Cognitive Stimulation Therapy (CST)

Goals

- To create an environment where people learn and strengthen their existing resources, hence functioning at their maximum capacity.
- To focus on implicit learning rather than explicit teaching e.g. people are asked of their opinions rather than to provide factual answers

Is cognitive stimulation effective?

- Spector (2003) has shown that:
 - Mini-mental state examination (MMSE) improved
 - Alzheimer's Disease Assessment Scale-cognitive subscale (ADAS-COG) improved
 - Quality of Life Alzheimer's Disease scales (QOL-AD) improved

Cognitive Training

Cognitive Training

- Involves guided practice on a range of standardized tasks reflecting particular domains of cognitive functioning
- **Perception, attention, concentration, memory, language, conversation, reading, problem-solving, and motor skills**
- Can be done in individual sessions, home practice, individual computer-based sessions and group therapy sessions

Cognitive Training

Is cognitive training effective?

- Clare and Woods (2003) has shown:
 - cognition
 - verbal memory
 - verbal fluency
 - self-reported memory functioning
 - informant reported participant memory functioning
 - informant reported participant memory and behaviour problems

Please visit <http://www.loveyourbrain.org.hk/room.php>

Problem solving

Concentration training

Motor skills training

Memory training

Emotion-Focused Approach

1. Validation Therapy (VT)

Validation Therapy (VT)

- Involves communication at the level of the **emotions** underlying the person's words, **validating these feelings** as true, irrespective of how the words related to our conception of current reality
- Empathizes the **hidden meanings and feelings** behind the confused speech and behavior
- Assumes all the words and actions of a person with dementia have a real sense of **purpose**
- Suggests that confused messages may attempt to make sense of the world, express needs or highlight distress and value
- **Promotes communication** with the severely confused older person on his/her own terms, on subjects that s/he chooses to discuss and issues that are important to him/her

Validation Therapy (VT)

Goals

- To **restore the person's dignity** and prevent deterioration into vegetation, through listening empathically and non-judgmentally, not challenging the person's view of reality
- To **restore a sense of emotional well-being** to severely confused people

• Is validation therapy effective?

– Hitch's (1994) has shown:

- Helps promote **contentment**
- Has **less negative affect and behavioral disturbance**
- Produces positive effects (**smiles, social interaction**)
- Provides the individual with insight into external reality

Validation Therapy (VT)

Techniques

- To link the person's behavior with the unmet human need underlying it
 - the need to be loved and nurtured
 - the need to be active and usefully engaged
 - the need to be able to express deep, raw emotions to an empathic listener
 - the need for security and safety
- To recognize the person's communication of feelings and emotions and to acknowledge and validate these, verbally and nonverbally
 - nonverbal communication includes the use of touch, eye contact, tone of voice, music and reminiscence

Validation Therapy (VT)

Techniques

- People coming into contact with the person with dementia are not expected to know all the facts about that person's history, but are encouraged to focus on the emotional content of what is being said and to attempt to understand the person in whatever reality he is experiencing
- Topics of conversation may center around past conflicts and problems; orientation to current here-and-now reality is irrelevant
- Communication-orientated strategies based on the counseling skills of reflective listening, exploration, warmth and acceptance are used

Validation Therapy (VT)

How does reminiscence therapy work?

<http://www.youtube.com/watch?v=CrZXz10FcVM&feature=related>

- Naomi Feil, founder of Validation Therapy, shares a breakthrough **moment of communication** with Gladys Wilson, a woman who was diagnosed with Alzheimer's in 2000 and is virtually non-verbal.

Stimulation and Activity Approaches

1. Art therapy
2. Music therapy
3. Aromatherapy
4. Animal-Assisted Therapy (AAT)
5. Multisensory Stimulation

Stimulation and Activity Approaches

NICE Clinical Guideline (2006) recommends:

- Individualized treatment plan
 - For people with all types and severities of dementia who have comorbid agitation, consideration should be given to providing access to **interventions tailored to the person's preferences, skills and abilities**, because people may respond better to one treatment than another, the response to each modality should be monitored and the **care plan adapted accordingly**

Art Therapy

- **Art Therapy**

- Is a form of non-verbal psychotherapy that uses visual imagery where the processes of **painting, drawing or sculpting** provide a space for individual expression and creative engagement with the self in action and social engagement.
- Provides a **channel of communication** and a chance to get in touch with inner self and the outside world.
- Allows people with dementia the time to **focus, express themselves, and recapture a sense of control** – all aspects of their former lives that they may have progressively lost to their disease.

Art Therapy

- Examples
 - making **collages and creative rugs** as an activity at a day hospital
 - developing an **individualised banner** with the help of an artist and occupational therapist at a day hospital
 - using a **self-expression closed group** at a day hospital to express the painful emotions that are encountered in the course of dementia

Music Therapy

- Music Therapy
 - is a **flexible** medium that has broad applicability across a variety of settings
 - is capable of having **immediate positive effects** on people when used both sensitively and in meeting the needs of the individual
 - has **few side-effects**, places **few cognitive demands** on people, and is a **cost-effective** intervention
- Music therapy can
 - relieve stress and aid **relaxation**
 - reduce physiological arousal
 - **aid sleep**, leading to a reduction in the need for medication
 - promote socialization and motor activity
 - facilitate **communication**, particularly for those with poor language
 - trigger memory and **aid reminiscence**

Music Therapy

Is music therapy effective?

- Goddaer and Abraham (1994) has shown:
 - a 63.4% **reduction in agitation** during mealtimes when relaxing music was played, in people with moderate-severe dementia
- Lord and Garner (1993) has shown that participants:
 - Had a higher level of well-being
 - Had better recall of personal information
 - Had an improvement in **mood and social interaction**
 - Displayed **more smiles, laughter, singing, dancing and whistles**

Music Therapy

- Oliver Sacks - Musicophilia - Alzheimer's/The Power of Music
- <http://www.youtube.com/watch?v=MdYpIKQ4JBc&feature=related>

Aromatherapy

Aromatherapy

- Is generally perceived positively, facilitates interaction and offers a sensory experience
- can be administered by inhaling oils through **vaporization, by bathing or massage**, as a compress or by applying the oil in a cream or aqueous solution
- may evoke particular memories or the mood associated with particular types of environment
 - an essential oil derived from a meadow flower may evoke the **pleasant and relaxed mood** that someone may feel in a quiet country field, or may induce a specific mood
- Several smells (e.g. lemon and lavender) can be detected by many people at **later stages** of dementia

Aromatherapy

Is aromatherapy effective?

- Burns *et al.* (2002) has shown:
 - the impact of aromatherapy (using lemon balm or lavender oil) on agitation
- Fraser and Kerr (1993) has shown:
 - providing a massage may improve the mood of the person applying the massage or promote enjoyable social interaction
- Worwood (1995) has shown:
 - Essential oils extracted from both melissa balm and lavender have an effect upon symptoms such as anxiety, restlessness, excitability and depression
 - Improvements in cooperation and communication

Animal-assisted Therapy (AAT)

- **Animal-assisted Therapy (AAT)**

- is gaining popularity as part of therapy programmes in residential aged care facilities
- produces a lowering of blood pressure and an increase in neurochemicals associated with **relaxation and bonding**
- effects may be of benefit in ameliorating behavioural and psychological symptoms of dementia (BPSD)

Animal-assisted Therapy (AAT)

- Is animal-assisted therapy effective?
 - Elliott and Milne (1991) and Haughie, Milne and Elliott (1992):
 - evaluated the impact of a visitor with a trained dog in a psychiatric hospital ward where most patients had a diagnosis of dementia
 - results showed that **interaction levels** increased markedly when the dog and visitor were present
 - behaviours e.g., **mobility and dependency**, were rated by nurses as improved when the dog was present
 - Filan and Llewellyn-Jones (2006) have shown:
 - the presence of a dog **reduces aggression and agitation, and promotes social behaviour**
 - aquaria in dining rooms of dementia care units stimulate residents to **eat more** of their meals and to gain weight
 - preliminary evidence that robotic pets may provide **pleasure and interest**

Multisensory Stimulation

Multisensory Stimulation

- often known as 'Snoezelen'
- usually occurs in a specifically designed multisensory room which can contain a variety of materials to stimulate different senses.
- comprising **calming music (e.g. traditional relaxing sounds such as a stream, bird song or the sea), visual stimulation from fibre optics and lava lamps, tactile stimulation and aromatherapy.**

Keys to conduct multisensory stimulation

- To devise stimulation and activity that will engage the person with dementia, that will be **enjoyed and valued, and not act as an irritant.**
- To build stimulation of the **person's preferred senses** into their care plan, offering a consistent and tailored approach.
- To be aware of **individual differences**; some will not want to have their hands massaged, or do not like dogs. Individual musical preferences must be respected.

Multisensory Stimulation

- Is multisensory stimulation effective?
 - Baker *et al.* (1997, 2001) has shown:
 - improvements in mood and behaviour and reduction in behavioral disturbance
 - Spaul *et al.* (1998) has shown:
 - Interaction and interest increased during the sessions, and disturbed behaviour was rated as having reduced following the sessions
 - Van Weert *et al.* (2005) has shown:
 - improvements in depression and apathy, and less disturbed behaviour

Physical Training

Physical Activity and Cognitive Function of Older People

Benefits of Exercise

- According to the ACSM Exercise guideline (2007), the benefits of exercise in older peoples include:
 1. reducing the risk of several chronic diseases, including hypertension, coronary artery disease, stroke, DM and osteoporosis, etc.
 2. reducing the risk of fall and injuries from fall
 3. improving cardiovascular performance, muscle strength and endurance, flexibility and a range of motion
 4. maintaining the physical mobility and daily activity function
 5. delaying cognitive loss and impairment

Evidence (1) – The Association of Physical Activity and Cognitive Function in Older People

- **Objective:** to explore the link between physical activity and the risk of cognitive impairment and dementia.
- **Study design:** cohort study with 5 year follow up.
- **Subjects:** 6,434 community-dwelling older people aged over 65 and cognitively normal at baseline.
- **Outcome measures:** incident cognitive impairment and dementia by levels of physical activity at baseline, physical activity regarding the frequency and intensity of exercise.
- **Results:** high levels of physical activity were associated with reduced risks of cognitive impairment (age-, sex-, and education-adjusted odd ration, 0.58; 95% C.I., 0.41-0.83). Alzheimer disease (odd ratio, 0.50; 95% C.I., 0.28-0.90), and dementia of any type (odd ration, 0.63; 95% C.I., 0.40-0.98).
- **Conclusion:** regular physical activity may represent an important protective factor for cognitive decline and dementia in older people.

Evidence (2) – The Association of Physical Activity and Cognitive Function in Older People

- **Objective:** to determine whether physical function is linked with incident dementia and Alzheimer disease.
- **Study Design:** cohort study with over 6 years follow up.
- **Subjects:** 2288 community-dwelling older people without dementia and aged over 65.
- **Outcome measures:** incidence rate of dementia, four physical performance tests and cognitive performance test.
- **Results:** the age-specific incidence rate of dementia was 53.1 per 1000 person-years for participants who scored lower on a performance-based physical function test at baseline compared with 17.4 per 1000 person-years for those who scored higher.
- **Conclusion:** poor physical function may precede the onset of dementia and Alzheimer's disease and higher levels of physical function may be associated with a delayed onset.

(Wang, 2006)

Explanation of the Association of Physical Activity and Cognitive Function in Older People

How does physical exercise preserve brain function?

- improve cerebral blood flow and oxygen delivery
- induce the fibroblast growth factor in the hippocampus
- reduce cell loss in sensitive areas like the hippocampus

(Larson, 2006)

What Kind of Physical Exercises are Suitable for Older People ?

Recommending Physical Activity to Improve the Health of Older People

1. Aerobic Activity:

- Moderate intensity aerobic activity
 - On a 10 point scale, moderate intensity activity is 5-6 (0- sitting whereas 10 – all out effort)
 - Produces noticeable increase in heart rate and breathing
 - Minimum 30 minutes on five day each week
 - In a addition to routine activities of daily living of light-intensity, e.g. self care, cooking, casual walking or shopping

Recommending Physical Activity to Improve the Health of Older People

2. Muscle Strengthening

- 8-10 exercises be performed on two or more consecutive days per week using major muscle group
- resistance should be used that allow 10-15 repetitions for each exercise

(ACC/ AHA, 2006)

Recommending Physical Activity to improve the Health of Older People

3. Flexibility and Balance Exercise:

- At least two day each week with at least 10 minutes each day
- Specific balance exercise should be performed to reduce the risk of injury from falls

(ACC/ AHA, 2006)

Can Tai Chi Help Prevent Dementia?

Dementia and Tai Chi Exercise

- What is Tai Chi?
 - involve slow and gentle movement
 - offer benefits of flexibility, muscle strengthening and endurance training
 - Involve weight shifting in a sequence of posture
 - combines physical movement with meditation
 - emphasize the conscious control of each body movement
 - Maintain a peaceful and relaxed state of mind

Dementia and Tai Chi Exercise

- **Study Objective:** to compare the memory function of older adults who regularly practiced mind-body (MB Ex) or cardiovascular exercises (CV Ex) with those who did not engage in regular exercise.
- **Results:** older adults who practiced MB or CV Ex demonstrated a similar level of memory function, and their learning and memory was better than that of individuals who did not exercise regularly.
- **Conclusion:** practicing both MB and CV Ex appears to have a combined effect that might help to preserve memory in older adults. MB Ex may be considered as an alternative training for older adults who cannot practice strenuous physical exercise.

Physical Training for Older People with Dementia

Therapeutic Effect of Exercise for Older People with Dementia

To improve and maintain physical mobility

To improve and maintain performance daily activity

To improve balance and reduce the risk of fall

To improve and maintain cognitive function

To alleviate inappropriate behaviors e.g. wandering and agitation

To improve mood states and lower depression

To improve sleeping problem

To reduce care givers stress

Evidence(1) The Effect of Exercise on Older People with Dementia - Overall

- **Objective:** to determine by meta-analysis whether physical exercises are beneficial for people with dementia and related cognitive impairments.
- **Results:** significant summary effect sizes (ES) were found for strength, physical fitness, functional performance, cognitive impairment and behaviour. The overall mean ES between exercise and non-exercise groups from all outcomes was 0.62 (C.I., 0.55-0.70).
- **Training Characteristics:** the mean training duration was 23 weeks, ranging from 2 to 112 weeks. There was an average of 3.6 sessions per week, ranging from 1 to 6 sessions, with average session duration lasting 45 minutes, ranging from 20 to 150 minutes.
- **Conclusion:** exercise was associated with statistically significant positive treatment effects in older patients with dementia and cognitive impairments.

Evidence (2) The Effect of Exercise on Older People with Dementia – Cognitive Function

- **Objective:** to examine the impact of exercise on cognitive symptoms and disability of residents with dementia.
- **Study Design:** pre and post randomised control trial over 12 weeks.
- **Subjects:** 75 residents with mild to moderate dementia were randomly assigned to experimental and control groups.
- **Outcome measures:** clock drawing test, Revised Elderly Persons Disability Scale (REPDS).
- **Exercise intervention:** 30 minutes duration, 3/weeks for 12 weeks.
- **Results:**(1) clock drawing test showed that exercise may slow the rate of progression of the cognitive symptoms related to dementia; (2) REPDS showed that exercise slowed and reversed disability in some of the activities of daily living.
- **Conclusion:** exercise appears to effect the progression of dementia and to improve ability in some activity of daily living for old aged home residents with dementia.

Evidence (3) The Effect of Exercise on Older People with Dementia – Behaviour Problems

- **Objective:** to review the research addressing exercise as an intervention for behaviour problems in cognitively impaired elderly persons.
- **Results:** (1) a decreased incidence of disruptive behaviour, hyperactivity, and aggression among subjects. (2) An increased ability of exercise group members to follow directions and interaction.
- **Training Characteristics:** light exercises and simple games, 30 minutes duration, 3 times per week.
- **Conclusion:** the use of exercise as an intervention may provide a viable alternative to physical and chemical restraint commonly used to control disruptive behaviour.

Evidence (4) The Effect of Exercise on Older People with Dementia - Communication

- **Objective:** To determine that planned walking has the capacity to improve the communication performance of patients with moderate to severe Alzheimer's disease.
- **Study design:** a randomised, non-blinded experimental control study.
- **Intervention:** the experimental group walked for 30 minutes, 3 times per week for 10 weeks while engaging in conversation. The control group participated in conversation only for same amount of time.
- **Outcome measures:** The Communication Assessment Scale for the Cognitively Impaired (CAS) and the Communication Observation Scale for Cognitively Impaired (COS).
- **Results:** communication performance improved significantly in the planned walking group.
- **Conclusion:** a planned walking programme has the capacity to improve the communication performance of patients with Alzheimer's disease.

Theoretical Explanations of the Effect of Exercise on Older People with Dementia

The mechanisms of the effect of exercise are not well understood. However, some promising explanations are available for the relationship of exercise and cognition.

- (1) Exercises can enhance cerebral perfusion which is consistently observed in the temporoparietal cortex of AD. (Eggermont, 2006)
- (2) Exercises stimulate the cortex of the brain and improve the neuromuscular and cardiovascular function. (Stevens, 2006)

Theoretical Explanations of the Effect of Exercise on Older People with Dementia

- (3) Increased levels of walking may enhance cortical activity of the motor cortex, which may trigger the neurons related to communication. (Friedman, 1991)
- (4) Vascular dementia or multi infarct trauma leads to ischemic difficulties for the brain while cardiovascular and peripheral vascular mechanisms are dependent on vigorous exercise for optimal function and health. (Bonner 1996)
- (5) The pathogenesis of AD involves the immune system and exercise can optimise the immune system to fight cortical disease. (McGeer, 1989)

Limitations and Barriers

Evidence suggests demented patients should be encouraged to actively participate in exercise, but limitations and barriers co-exist:

- Cognitive problem
- Behavioral problem
- Mood problem e.g. depression
- Higher risk of fall e.g. drug treatment may provoke hypotension

Implications

- The goal of conducting activities for older people with dementia differs with respect to other diseases.
- Rather than achieving the primary goal of mobilising and restoring physical function, the activities should focus on:
 - providing opportunities to release energy
 - restoring feelings of self-worth
 - alleviating frustration and confirming dignity
 - providing a sense of accomplishment
 - ensuring pleasure

(Bonner, 1996)

Suggested Interventions

- Perform exercises in a group.
- Prepare a relaxed environment
 - avoid distraction and noise
 - bright light appeared to reduce diverse behavioural disturbances
 - non-vocal music with familiar melodies is recommended for a calming effect
- Simplify the movements and instruction.

Suggested Interventions

- Encourage with positive reinforcement.
- Exercise with simple equipment, e.g., balls.
- Design exercises involving large muscle movements as these may be more easy to execute, such as walking, cycling.
- Make sure an assistant or companion is present.

Home Modification

Optimize the Living Environment of Older People with Dementia

The Role of Home Modification

- To minimize the hazards and enhanced safety
- To change and minimise some behavioural problems
- To reduce the restriction and enhance the independence
- To provide a sense of security
- To reduce anxiety and levels of stress
- To reduce the caregiver's stress
- To compensate for impaired orientation and impaired memory
- To compensate for visual disturbance
- To reduce the risk of fall

Points to Note

- Creating a therapeutic environment for older people with dementia is complicated.
- A user-friendly approach should be used to design the living environment to meet specific needs.
- It is necessary to think of ways to maintain familiarity, reduce confusion and yet provide a pleasant and appropriate living environment for individual needs.

(Dippel, 1996)

Suggestions to Improve Orientation

Suggestions to Improve Orientation

Illumination

- Increase the intensity of lighting during daytime and decrease the intensity during evening and night to reduce the confusion relative to time
- Provide low light in bedrooms, bathrooms and hallway during night hours to provide information relative to place

(Dippel, 1996)

Suggestions to Improve Orientation

Colour

- Contrasting colours may assist in the identification of place and facilitate the assess of place.
- For example (1): the same colour of corridor and restroom will easily create confusion
- For example (2): contrasting colour for toilet door and walls will facilitate access to the toilet and reduce incidents.

(Dippel, 1996)

Suggestions to Improve Orientation

Furnishings

- The furnishings should clearly denote the nature of activities to reduce confusion, such as dining room should be used for activity
- Use sound absorbent materials in all area to reduce audio confusion
- Placement of familiar objects such as family pictures can assist the orientation
- Avoid clutter in accessible areas

(Dippel, 1996)

Suggestions to Improve Orientation

Sign

- Signs should be appropriately placed and labelled to improve orientation
- The signage should be printed in large letters and placed at eye level, possibly in graphic illustration
- Large clocks and calendars should be prominently displayed

Suggestions to Reduce Visual Disturbance

Suggestions to Reduce Visual Disturbance

Illumination

- Avoid positioning lighting fixtures directly over the bed as this will reduce the glare and spotlight effect of vision
- Design lighting to be indirect and diffused to reduce glare and shadow patterns

Spatial Arrangement

- The dinning room and bathroom should be clearly visible and accessible and at a distance of individual's competency level

Suggestions to Reduce Visual Disturbance

Colour

- Use contrasting colours to distinguish the place such as door, rooms, etc.
- Avoid using sharp colour contrast in patterns on the wall covering, floor or windows as they create visual complexity and increase visual confusion
- Avoid using pattern with strong colour contrast or distorted designs

(Dippel, 1996)

Suggestions to Reduce the Risk of Fall

- Furniture components should be sturdy and noncollapsible
- Take care with the placement of electric cords
- Avoid periodic rearranging of furniture to minimise confusion
- Chairs and sofas should not be too low or too soft and should be equipped with arm rests
- All furniture components should have rounded or bevelled edges on arm pieces

Checklist

- The following link to the U.S. National Institutes of Health provides a checklist for making a safe and therapeutic environment for dementia patients:
 - <http://www.nia.nih.gov/alzheimers/publication/home-safety-people-alzheimers-disease>

Approaches in Designing Environments for People with Dementia

- ∅ Decrease disturbing behaviour
- ∅ Increase social behaviour
- ∅ Increase activity for energy release
- ∅ Increase positive feelings and decrease negative feelings

The goal is to minimise unwanted behaviours and feelings and maximise those that are desired.

Evidence: The Effect of Environmental Intervention for Patient with Dementia

- **Objective:** to determine the effects of a home environmental intervention on self-efficacy and daily function of dementia patients and benefits to caregivers.
- **Study Design:** pre and post randomised control trial.
- **Intervention:** home visit by OT to undertake home modification.
- **Results:** caregiver in intervention group reported less decline in patients' daily activity, self care and behavioural problems. Caregiver also reported self-enhanced self-efficacy in managing behaviours and functional dependency.
- **Conclusion:** environmental intervention appears to have a modest effect on dementia patients' IADL dependence.

Fall Prevention of Older People with Dementia

Falls and Dementia

Falls are an important cause of morbidity and mortality in older people with dementia

- The annual incidence of falls is about 70-80%
- Twice the incidence of fall as compared with normal older people
- Fallers with dementia are approximately five times more likely to be admitted to institutional care than older people who do not fall

Falls and Dementia

The causes of fall

- Impairment of gait and balance
- Prescription of psychotropic medications
- Orthostatic hypotension
- Impairment of attention control
- Behavioral risk factors such as wandering
- Environmental factors

Evidence (1): The Link Between Falls in Patients with Dementia and Environmental Hazards

- **Objective:** to examine the frequency of environmental hazards in the homes and care environments of patients with dementia and their association with falls.
- **Study Design:** cross-sectional study measuring the frequency of falls and environmental hazards.
- **Results:** no significant association between the number of hazards and the number of falls.
- **Conclusion:** it was revealed that multiple rectifiable risks were contributing to a significant minority of falls.

Evidence (2): The Effect of Multi- interventions on Fall Prevention for Patients with Dementia

- **Objectives:** meta-analysis of fall prevention studies of particular relevance to older people with dementia.
- **Multifaceted intervention:** the interventions included risk assessment, risk factor assessment, care planning, medical or diagnostic approaches, changes in the physical environment, educational programmes, medication review, restraint removal and exercise.
- **Results:** the intervention had no effect on the number of falls or on number of people falling. The relative risk for fallers was 0.92 (C.I., 0.81-1.03).
- **Conclusion:** although some individual trials demonstrated a reduction in falls, the meta-analysis failed to demonstrated statistically significant reductions.

Points to Note

Systematic review and meta-analysis does not demonstrated benefit from multifactorial or individual intervention strategies

It is explained that dementia carries an additional set of risk factors for falls which are not addressed by interventions initially designed for cognitively normal population

Falls and Dementia

- Suggestions to reduce the risk of fall:
 - ρ Review of medication, including psychotropic medication and cardiovascular medication
 - ρ Continue to monitor orthostatic hypotension
 - ρ Participate in physical training programme
 - ρ Design a safe physical environment
 - ρ Use fall alarm devices in certain circumstances
 - ρ Provide calcium and vitamin D replacement
 - ρ Use physical restraint appropriately

End of Chapter Three

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