

Behavioral and Psychological Symptoms of Dementia (BPSD) Educational Pack



The BPSD Educational Pack was produced by the International Psychogeriatric Association (IPA) under an educational grant provided by Janssen-Cilag. The opinions expressed in the BPSD Educational Pack are those of the contributing authors and are not to be construed as the opinions or recommendations of the publishers or sponsors. Full prescribing information must be obtained for any of the drugs or procedures discussed herein.

Copyright for the content of this publication is owned by the International Psychogeriatric Association (IPA). © 1998, 2002 International Psychogeriatric Association.

MODULE 7: Cross-cultural and transnational considerations

Preface.....	3
Key messages	4
Introduction.....	4
Aspects of BPSD likely to vary across cultures	4
Approaches to Assessment	6
Approaches to Management	8
Cross-cultural perspectives.....	9
BPSD in the USA.....	9
Non- Hispanic White.....	10
Hispanic	10
BPSD in Turkey	14
Assessment and Frequency of BPSD	14
Approaches to Management	15
BPSD in India	15
Historical background	15
There are changes occurring in India too. The Alzheimer’s and Related Disorders Society of India (ARDSI) with many chapters all over India has, to some extent, succeeded in increasing the level of awareness about dementia. The plight of the families who look after relatives with dementia at home is being recognized and discussed. Specialized dementia care services, which focus on the management of BPSD, are likely to come up in many general hospitals which are usually located in the urban areas. This is primarily because of increasing demand for such services from the educated sections of the society. In addition, the availability of many drugs useful in the management of BPSD has brightened the prospect of better management of these symptoms. The prospect of networking centers that provide specialized dementia care is also being discussed. It is anticipated that abundant information about the management of BPSD will be available in the next few years, once specialized dementia care services are established in many general hospitals in India.	18
BPSD in Argentina	18

Frequency of BPSD.....	19
BPSD M ± SD n % Patients.....	19
BPSD and Caregiver Burden.....	20
Approaches to Management.....	21
BPSD in Taiwan.....	21
BPSD in Africa and the Caribbean.....	23
Prevalence and presentation.....	23
Approaches to Management.....	24
Educational training interventions in BPSD.....	27
Aims of educational training interventions in BPSD:	27
Implementation of educational training interventions in BPSD.....	28
References and recommended reading.....	30
Educational Training Interventions in BPSD.....	34

Preface

Cognitive symptoms of dementia have been those most widely studied. Recent years have seen the growth of research in functional changes in persons with dementia, including reduced ability to carry out normal activities of daily living. This series of educational modules concentrates on the behavioral and psychological symptoms of dementia (BPSD), which have historically been referred to as 'behavioral disturbances'.

BPSD exact a high price from both the person with dementia and the caregiver in terms of the distress and disability they cause if left untreated. This is the key to the development of this Educational Pack. We believe that BPSD are recognizable, understandable and treatable. The recognition and appropriate management of BPSD are important factors in improving our care of dementia patients and their caregivers.

This BPSD Educational Pack originally distributed in 1998 and updated in 2002 draws on material presented at the Consensus Conferences of the International Psychogeriatric Association (IPA) Task Force on Behavioral Disturbances of Dementia (now the IPA Task Force on Behavioral and Psychological Symptoms of Dementia), held in the Spring of 1996 and the BPSD Update Conference in 1999. Until recently research on the recognition and treatment of BPSD has been sparse. The consensus conferences effectively took the first steps towards recognizing BPSD as a collection of core symptoms of dementia.

Regulatory agencies of several countries recognize BPSD as a legitimate entity for treatment and research purposes. Others have approved research and treatment for specific components, such as psychosis of Alzheimer's disease.

We hope these modules will provide a useful overview of the presentation and causes of BPSD, offering constructive guidance on treatment interventions, both pharmacological and non-pharmacological, coupled with information on caregiver education and support. We suggest that readers make use of the reference and recommended reading lists provided at the end of each module.

Also, we hope the material will contribute to the improved management of dementia patients with BPSD and reduce some of the stresses experienced by the caregiver and families of dementia patients.

Henry Brodaty, Project Editor

*University of New South Wales
Prince of Wales Hospital
Sydney, Australia*

Sanford I Finkel, Project Editor

*Council on Jewish Elderly Geriatric Institute
Chicago, Illinois USA*

Key messages

- Studying behavioral and psychological symptoms of dementia (BPSD) across cultures allows the identification of similarities and differences that may be useful to determine the best approach to managing these symptoms in different populations.
- An effective approach to management in one culture may not necessarily work in another, given the different prevalence of various BPSD and level of tolerance for these within that culture.
- The patient's and caregiver's location can affect the impact and subsequent management of BPSD. Symptoms that pose difficulties in an urban setting (such as pacing or wandering) may not be regarded as problematic in a rural setting (where most patients will have room to pace and are less vulnerable if they wander).
- Comorbid conditions such as schizophrenia, depression and alcoholism may vary in frequency across communities and could alter the presentation of BPSD in demented subjects.

Introduction

This module reviews cross-cultural and transnational aspects of BPSD and gives a series of snapshots from different ethnic groups, cultures and nations around the world. It begins with a discussion of aspects of BPSD likely to vary across cultures and examines the reasons behind real or apparent differences. Each of the cross-cultural perspectives comes from physicians who all understand the culture described.

Dementia and associated BPSD are already recognized as a major medical challenge for the aging populations of the Western world. Although in many developing countries, BPSD are not yet regarded as a central focus, there is no doubt that, in time, these symptoms will present a management issue for these countries. The groundwork in observing similarities and differences in dementia and BPSD across cultures discussed herein will likely prove valuable in the future.

Aspects of BPSD likely to vary across cultures

The study of BPSD across cultures and nations allows the identification of similarities and differences to determine the best approach to management. However, it is possible that an effective approach to management in one culture may not necessarily work in another given the varying levels of prevalence and tolerance of BPSD within the communities in which they occur.

In the following section, cultural factors critical to our understanding of the prevalence and presentation of BPSD and its assessment and management will be reviewed. Further, the impact of research methodology on our understanding of these areas will be evaluated. Lastly, cross-cultural perspectives pertaining to BPSD in USA, Turkey, India, Argentina, Taiwan, Africa and the Caribbean will be highlighted.

Prevalence and presentation

Prevalence and presentation of BPSD in different communities are affected by a variety of illness-related and cultural factors. Illness-related factors include the rates of dementing disorders in the community and the expected life span. In some African and Asian countries the lifespan of the general population is shorter than in some Western countries. Thus, patients with dementia are also likely to have a shorter life expectancy. This lessened life span may influence:

- the development of BPSD; and,
- caregiver perceptions of the severity of symptoms.

In addition to prevalence and survival rates, BPSD may vary according to the predominant dementia subtype(s) found in the community. The co-morbid conditions of schizophrenia, depression and alcoholism may also vary in frequency across communities and could alter the presentation of BPSD in persons with dementia.

Cultural-related factors may also influence the prevalence and presentation of BPSD. In some countries, caregivers deny BPSD to avoid the stigma of mental illness. This is particularly seen in countries such as Nigeria and Argentina,

Although it is important to evaluate the cultural factors among various countries, it is important to recognize the cultural variations within a country. In the section on Argentina, the authors report a mixture of ethnic cultures. In Buenos Aires, for example, caregivers are more apt to inquire about BPSD treatment. Argentineans descending from the Volga region of Germany, in comparison, are more likely to deny BPSD as these symptoms are stigmatizing. Additionally, in many studies examining neuropsychiatric symptoms among black patients with dementia in the United States, black populations are treated as homogeneous groups (Cohen and Magai, 1999). This is problematic due to intraracial differences in psychiatric symptom expression (Cohen and Magai, 1999). Therefore, it is important to consider the possibility of intraracial differences when making comparisons about the prevalence and presentation of BPSD.

Table 1 (below) documents the frequency of BPSD in the European Union (Homma, 1996), the United States (Reisberg et al., 1989; Patterson et al., 1990) and Japan (Karasawa et al., 1988). Probably one of the most remarkable differences is the frequency of depressive symptoms between the United States, the European Union, and Japan. This may be explained in part by the different attitudes of health professionals, including physicians, toward the depressive complaints of the elderly with dementia. For instance, in Japan, widows or widowers sometimes complain “Last month, I finished the seventh anniversary ceremony of the death of my husband/wife. So it may be good timing to terminate my life.” Such a complaint may be recognized as a depressive symptom in the United States or Europe, but, in Japan this type of statement is not unusual, and is usually not recognized as a symptom of depression.

Table 1. Frequency (%) of BPSD in AD in the European Union, USA, Japan and Turkey. adapted from Homma, 1996.

	European				
	Union	US	US	Japan	Turkey
Symptoms in BEHAVE-AD	(n=38)	(n=91)	(n=34)	(n=92)	(n=36)
Paranoid and delusional ideation	57.9		38	20.0	29.3
‘Others are stealing things’	13.2	22.0	21		22.9
‘Residence is not home’	31.6	17.6	15		25.5
‘Spouse is an imposter’	10.5	14.3	0		5.2
Delusion of abandonment	21.1	11.0	---		13.7
Delusion of infidelity	---	---	0		15.3
Suspiciousness	10.5	29.7	18	17.4	49.5
Delusions other than above	18.4	19.8	—		26.5

Hallucinations	21.1		7.6	7.6	
Visual hallucinations	18.4	14.3	15		25.1
Auditory hallucinations	–	–	–		5.9
Olfactory hallucinations	–	–		–	–
Haptic hallucinations	–	–		–	2.9
Other	–	–		–	–
Activity disturbances	86.8		44		
Wandering	57.9	28.6	12	21.7	49.8
Purposeless activity	57.9	47.3	42		41.3
Inappropriate activity	57.9	33.3	19	27.2	80.2
Aggressiveness	84.2			18.5	
Verbal outburst	60.5	29.7	24	7.6	46.4
Physical threats and/or violence	47.4	16.5	–	10.9	29.2
Agitation other than above	50.0	40.7	12		35.6
Diurnal rhythm disturbances	42.1		13	21.7	
Day/night disturbances	42.1	25.3	13		44.2
Affective disturbances	28.9		32	2.2	
Tearfulness	26.3	37.4	32		24.8
Depressed mood: other	13.2	26.4	0		28.1
Anxieties and phobias	36.8		50	–	
Anxiety about upcoming events	10.5	27.4	41		21.3
Other anxieties	10.5	22.0	26	5.4	37.0
Fear of being alone	21.1	25.3	15		38.6
Other phobias	–	13.2	12		–

Approaches to Assessment

Evaluation of behavioral disorders in elderly patients with dementia poses some specific problems when working in different cultural settings. It is important to note the following critical factors when making comparisons across cultures:

- Awareness of the significance of BPSD
- Level of expertise in assessment of BPSD
- Tolerance of specific behavioral and psychological symptoms
- Cultural appropriateness of rating scales

In many countries, such as Turkey and India, dementia and BPSD are perceived as a national consequence of aging. As a result, caregivers may not even seek assessment of the symptoms unless these symptoms are deemed severe. In some cultures, Turkey for example, psychiatrists and general practitioners may lack the expertise to assess BPSD. It is important to note, however, that some countries highlighted in this module have made a concerted effort to promote the awareness of dementia over the last few years. For example, as Alzheimer's organizations are becoming more active in many areas of the world such as India and Mexico, the awareness of dementia is heightened and caregivers are finding outlets to discuss dementia.

In the United States, efforts are also being made to increase the awareness of BPSD and refine criteria of syndromes in AD. For example, Jeste and Finkel defined criteria for a distinct syndrome, psychosis of AD (Jeste and Finkel, 2000). Consequently, psychosis of AD has been accepted by the Federal Drug Administration as a target for intervention (Olin et al, 2002). Further, researchers in the United States have also developed provisional diagnostic criteria for depression of

Alzheimer's disease (Olin et al, 2002). Developing specific criteria for such conditions as psychosis and depression of AD has the following implications:

- reduction of heterogeneous diagnostic methods
- generation of homogenous populations in research studies
- increased clinician recognition of the conditions

The tolerance of specific BPSD also differs across cultures. Although wandering may be considered an important focus in the management of dementia in the United States, it was not considered a problem in India until recently. Incontinence, however, has been noted in the literature to be of concern since there is a high expectation of a certain level of personal hygiene in India (Chandra, 1996).

Rating scales are an important means to assessing BPSD. Yet, if cross-cultural comparisons are to be made, these rating scales must be compatible across cultures. Most rating scales involve observations of symptoms by key informants, usually spouses. This is probably a reasonable way to proceed within one culture or one defined population as informants' views about what constitutes acceptable behavior or disruptive symptoms are likely to be somewhat similar. This may not hold across cultures, however, where tolerance of behaviors and understanding and expectations of the elderly may vary widely. To ensure validity in the assessment of BPSD, rating scales need to include some measurement of informant personality characteristics including tolerance of disruptive behavior and views on the role of the elderly.

-
- Rating scales need to be translated into local languages. Further, the scales should be 'harmonized' – the instruments must be consistent with the cultural, linguistic and educational norms of the subject population.
-

Prior to the development of local language versions of rating scales, the clinical terms included in the scales should be clearly defined. For example, the definition of agitation used in the CMAI is somewhat different from that in Japan where physically abusive behaviors are usually not included in agitation. In Japan, agitation means behaviors with restlessness and irritable mood.

Rating scales that can be applied with validity in different cultures have been developed. For example, the Composite International Diagnostic Interview (CIDI), a World Health Organization (WHO)-sponsored international epidemiologic interview, and an expansion of the Diagnostic Interview Schedule (DIS), has now been tested in worldwide field trials.

There are now reliable screening instruments to identify dementia based upon cognitive performance. Some of these, like the Hindi Mental State Exam and the Cognitive Abilities Screening Instrument (CASI), have been used successfully in cross-cultural studies. One assessment scale, the Community Screening Instrument for Dementia (CSID) has been developed to include both cognitive testing and informant data about performance in everyday living. This instrument has now been used with good sensitivity and specificity in the Cree (Native American), African-American, Chinese and Yoruba (Nigerian) populations.

Clinical assessment instruments based upon translations of the Consortium to Establish a Registry in Alzheimer's Disease (CERAD) neuropsychological battery, the Geriatric Mental Status (GMS), and the Cambridge Examination for Mental Disorders of the Elderly (CAMDEX) are also available. There are now several internationally-used rating scales available in Asian countries (Homma 2000). The NPI has been used to assess BPSD in United States, Taiwan, Japan, and Italy. More recently, the NPI has been used in demented patients from Yoruba, Nigeria, after being translated, back translated and harmonized into Yoruba (Baiyewu et al, 2002)

In their pilot study, the 10/66 Dementia Research Group made an attempt to develop a one-stage screening procedure for dementia in the community. They interviewed 2,885 persons aged 60 and over in 25 centers in India, China and South East Asia, Latin America and the Caribbean and Africa; 729 people with dementia, and three groups free of dementia; 702 with depression, 694 with high education and 760 with low education. Experienced local clinicians diagnosed dementia (DSM-IV dementia and Clinical Dementia Rating mild or moderate) and depression (Montgomery Asberg Depression Rating Scale 18 or over). The Geriatric Mental State, the Community Screening Instrument for Dementia and the modified CERAD 10 word list-learning task were then administered by an interviewer, masked to case status.

Each measure independently predicted dementia diagnosis. In a split-half procedure, an algorithm derived from all three performed better than any of them individually; applied to the other half of the sample it identified 94% of dementia cases with false positive rates of 15%, 3% and 6% in the depression, high education and low education groups. The algorithm developed and tested by the 10/66 provides a sound basis for culture and education-fair dementia diagnosis in clinical and population-based research, supported by translations of its constituent measures into many languages, covering the majority of the peoples of the developing world.

When we conduct cross-cultural comparative studies, there is no doubt that rating scales employed in the study should be harmonized from the view point of different ethnic backgrounds as stated earlier. However, one of the more sensitive problems for most health professionals is how to choose an appropriate rating scale for the study or their daily activities in the community or facilities. Neville and Byrne (2001) reviewed 31 rating scales used to measure BPSD. They identified five which are recognized as suitable for use by nurses:

- Cohen-Mansfield Agitation Inventory (CMAI)
- Dementia Behavior Disturbance Scale (DBDS)
- Nursing Home Behavior Problem Scale (NHBPS)
- Pittsburg Agitation Scale (PAS)
- Revised Memory Behavior Problem Checklist (RMBPC)

The Neville and Byrne review did not have a cross-cultural aim. However, it seems that the results of this review could be helpful in determining a rating scale that would be appropriate to the specific goals of a study. A cross-cultural or trans-national study is needed to promote and facilitate cross-cultural comparative studies on BPSD.

Approaches to Management

Reactions to BPSD and subsequent management approaches vary across different communities depending upon:

- size and location of the community
- availability of caregivers, and presence or absence of extended family
- availability of healthcare services
- availability of nursing homes
- role and expectations of the elderly
- concepts of dementia and deviant behavior
- tolerance of BPSD in the community.

General statements from cross-cultural perspectives regarding management include the following:

In the United States and Jamaica, combination therapies such as non-pharmacological management with pharmacotherapy are often utilized. Atypical neuroleptics, antidepressants, mood stabilizers, and anxiolytics are used in the management of BPSD in the USA and Jamaica. Similarly, pharmacological management is also used for the treatment of BPSD in Turkey and

Mexico. Neuroleptic use in Turkey and Mexico, however, is mostly with traditional neuroleptics. In the rare instances that demented patients from Ibadan, Nigeria, receive treatment for BPSD, phenothiazines are prescribed.

Nursing home care is available for patients with dementia, with and without severe BPSD, in many countries like the United States and Argentina. However, in these countries, most patients with dementia reside at home with their family. In the United States, Caucasians utilize more nursing home beds compared to African-Americans. In Turkey, patients with dementia reside mostly in their homes, while care in a specialized unit is reserved for those patients with severe BPSD. Nursing home care is not available in India and Nigeria. Consequently, those with severe BPSD in India and Nigeria are cared for by family.

Research methodological considerations

Researchers must be careful about making assumptions about the prevalence or presentation of BPSD across cultures, as well as management and treatment of BPSD, due to a number of methodological factors (Arai, 2000; Jeste and Finkel, 2000; Cohen and Magai, 1999; Discussion 7, 1996; Valle, 1994; Wragg and Jeste, 1989). Some specific examples include the following:

- It is important to note the comparability (or lack thereof) of the populations studied. In western cultures, for example, rates for populations of convenience such as nursing home residents or outpatients are often used (Discussion 7, 1996). Likewise, are the groups that are being compared similar in their dementia severity with regard to type of dementia, methods of assessment, etc.? Furthermore, are these factors clearly defined?
- Many studies of BPSD do not provide a racial composition of the population studied, or test for racial differences (Cohen and Magai, 1999).
- Much of the literature available from various countries is via studies with small sample sizes. More data from large representative samples is needed for useful comparisons.

Cross-cultural perspectives

BPSD in the USA

The presence of Alzheimer's disease (AD) and other dementing disorders in different ethnic groups in the United States is well-documented. However, the characteristics of dementing disorders, such as the presence of BPSD, remain largely unexplored in these groups. This is quite troublesome, in light of the diverse aging population.

According to the US Census, approximately 35 million people aged 65 or older resided in the United States in 2000, representing 12 percent of the population (US Census Bureau, 2000). The elderly have increased in growth since 1900 when they represented only 4 percent of the population (Federal Interagency Forum, 2000). Although there has been considerable growth in the elderly in the United States, older persons represent 15 percent or more of the total population in other industrialized countries. By 2050, the elderly population is projected to more than double to 80 million (US Census Bureau, 2001).

The "oldest old", representing those aged 85 and older, is the fastest growing segment of the elderly population. Representing approximately 4 million people in 2000 (two percent of the US population), it is projected that this group will increase to 19 million by 2050 (five percent of the US population).

As the elderly population continues to grow, diseases such as dementia, have a devastating impact on the older population and society. Currently 4 million Americans suffer from AD. This number is expected to increase to 14 million by 2050 (Bonner and Peskind, 2002). The growing number of

patients with AD has both public health and economic consequences. Alzheimer's disease contributes to greater than 100,000 deaths each year in the United States (Chen et al, 2000). Additionally, the annual cost of AD to society is approximately \$100 billion (Alzheimer's Association, 2002).

As the United States witnesses an explosion of the elderly population, there will be a marked increase in the diversity of this population (See Table 2). This growth is of concern since dementing disorders have been found to be high or higher in African Americans and Hispanics than Caucasians (Tang et al, 1998). As the non-Hispanic Caucasian population 65 and older, decreases from 84% in 2000 to 64% in 2050, there will be an increase in the ethnic minority population. Further, the fastest growing will be the Hispanic older population, with a projection of 2 million in 2000 to over 13 million by 2050.

Table 2. Projected Distribution of the Population Aged 65 and Older, 2000 and 2050 (United States Bureau of the Census, 2001)

Ethnicity	2000	2050
Non- Hispanic White	84%	64%
Hispanic	6%	16%
Non-Hispanic Black	8%	12%
Non-Hispanic Asian and Pacific Islander	%	7%
Non-Hispanic American Indian and Alaskan Native	0.4%	0.6%

Yet, there is little scientific literature on dementia as it relates to ethnic minority elders. This is mostly due to the under-representation of minority elders in research (Morse et al., 1995; Lovato et al., 1997; Mouton et al., 1997; Stoy et al., 1995; Coleman et al., 1997; Moody et al., 1995; Areal and Gallagher-Thompson, 1996; Sinclair et al., 2000; Hall, 1999). For example, as part of the Genetics, Response and Cognitive Enhancers (GRACE) Conference, the data sets from Alzheimer's trials, including the National Institute on Aging (NIA)'s Alzheimer's Disease Cooperative Study (ADCS), and Phase II and III clinical trials for acetylcholinesterase inhibitors (galantamine, sabeluzole, and rivastigmine), were examined. Minorities represented only 3.6% (420) of the combined number of subjects enrolled in all studies (N=11,537) (GRACE, 2000).

PREVALENCE AND PRESENTATION OF BPSD

Numerous studies have evaluated the prevalence and nature of BPSD (Jeste and Finkel, 2000; Chen et al, 2000; Chung and Cummings, 2000; Paulsen et al, 1999; Cohen et al, 1996; Mega et al, 1996; Levy et al 1996; Cohen, et al 1993; Wragg and Jeste, 1989; Cooper, 1991; Deutsch, 1991). The reported prevalence of BPSD varies in AD literature as a result of a number of factors, including methodological variability, differences of inclusion and exclusion criteria and selection bias in the referral population (Chung and Cummings, 2000). Further, much of the literature is limited by methodological concerns, including the inclusion of heterogeneous groups of dementia patients and small sample sizes. Studies that have evaluated the prevalence and presentation of BPSD across racial and ethnic groups in the United States have not been methodologically rigorous.

Nevertheless, summaries of three articles evaluating the BPSD across racial and ethnic groups in the United States are presented here, to highlight potential racial and ethnic differences and illustrate specific methodological issues.

Cohen C, Magai C. *Racial differences in neuropsychiatric symptoms among dementia outpatients.* Am J Geriatr Psychiatry 1999; 7: 57-63.

Description: 240 outpatients (78% women) with either Alzheimer's disease or multi-infarct dementia were evaluated to examine whether race has independent effects on the prevalence and levels of neuropsychiatric symptoms of dementia). The patients were evaluated at the Brooklyn Alzheimer's Disease Assistance Center of the State University of New York from 1992-1995. Sixty-eight percent of the cohort were African American (n =164) and 32% were Caucasian (n=76). Of the African American cohort, 63% were born in the United States and 37% were African Caribbean. Patients were diagnosed with dementia according to DMS-III-R criteria resulting in a cohort with 70% AD; 17% with multi-infarct dementia; and 14% exhibiting features of AD and some mixed features. The authors specifically investigated psychoses, agitation, and depression in this group utilizing BEHAVE-AD.

Specific findings:

- Depressive affect was noted to be significantly higher in Caucasians ($p < 0.05$) as compared to African Americans. These findings are consistent with data showing fewer depressive symptoms among black nursing home residents (Walker et al, 1995) and among black outpatients with dementia (Fabrega et al, 1988).
- Psychoses and activity disturbance were noted to be significantly higher in African Americans ($p < 0.01$ and $p < 0.05$, respectively), as compared to Caucasians. These findings are consistent with other published literature (Cohen and Carlin, 1993; Cohen et al., 1996).
- After multivariate analysis, depressive affect and psychoses remained significant.
- No significant differences in symptoms were noted between United States-born African Americans and African Caribbeans.
- Differences between African Americans and Caucasians most likely due to racial differences in types of symptoms precipitating evaluation. The lack of significant differences between United States-born African Americans and African Caribbeans suggest that differences between African Americans and Caucasians may have biological or genetic etiology.

Limitations:

- The study population was not a random sample. The study population was selected from patients brought to the center for evaluation. The racial differences may be then, reflections of symptom perception and caregiver tolerance. Additionally, the authors suggest that African Caribbeans' presentation to the evaluation center may be due to acculturation. The authors note the possibility of different levels of symptomatology among African Caribbeans with dementia who have not received evaluation and treatment in the community setting, in comparison to African Caribbeans with dementia seeking evaluation and treatment.
- The study involved a small sample size (n = 240).
- The study population contained a heterogeneous group of dementia patients. The authors report, however, the correlations between the dementia types and symptoms ranged from 0.06 to 0.09. Regression analysis revealed non-significant t values.

Chen J, Borson S, Scanlan J. *Stage-specific prevalence of behavioral symptoms in Alzheimer's disease in a multi-ethnic community sample.* Am J Geriatr Psychiatry 2000; 8(2):123-133.

Description: At the University of Washington Alzheimer's Disease Research Center (ADRC), 125 outpatients with probable and possible AD were evaluated for the purpose of investigating their behavioral symptoms and their association to AD severity. The study population included 38 African-Americans, 63 Asian Americans/Pacific Islanders, 17 Hispanics and 7 Native African-Americans/Alaskan Natives. A large number of the study population was non-English speaking immigrants, and 75% were women. Patients were diagnosed with dementia using the DSM-IV criteria for DAT and NINCDS/ADRDA. Based on these criteria, 108 were diagnosed with probable AD, and 17 were diagnosed with possible AD. Behavioral symptoms were evaluated utilizing BEHAVE-AD.

Specific Findings:

- No significant differences were found in the severity of dementia among the ethnic groups.
- Hispanics were noted to have a significantly higher total behavioral symptom score compared to Blacks.
- Blacks reported a lower overall prevalence of behavioral symptoms compared to the other ethnic groups.
- Blacks reported significantly reduced depressive, anxiety, and sleep symptoms compared to Asians and Hispanics.

Limitations:

- The BEHAVE-AD scale may not have been appropriate for assessing symptoms in this multi-ethnic population as it has not been validated across all cultures. There are additional concerns about whether caregiver reports via BEHAVE-AD are a representation of under- or over-reporting by caregivers versus actual exhibition of symptoms by patients
- Subjects were identified via convenience sampling.
- Ethnic groups were represented by small sample sizes. Further, no investigation for differences within the different ethnic groups was made.

Mintzer J, Nietert P, Costa K, Waid L. *Agitation in Demented Patients in the United States. International Psychogeriatrics, 1996; 8 (Suppl 3) 487-490.*

Description: Two studies to assess the presence and compare the characteristics of agitation were conducted in two different settings. The purpose of each was to evaluate the presence and characteristics of agitation in African American and Caucasian patients with dementia, living in either a nursing home or at home with a caregiver. Dementia was defined using DSM-III criteria. The Cohen-Mansfield definition of agitation (i.e., inappropriate behavior unrelated to unmet needs or confusion per se) was used. Agitation was categorized according to the following three factors identified on the Cohen-Mansfield Agitation Inventory (CMAI):

- Aggressive behavior (e.g., hitting, kicking, pushing, scratching, tearing things, cursing or verbal aggression, grabbing, biting, spitting)
- Physically non-aggressive behavior (e.g., pacing, inappropriate dressing or undressing, repetitious sentences or questions, trying to get to a different place, handling things inappropriately, general restlessness, repetitious mannerisms)
- Verbally agitated behavior (e.g., complaining, constant requests for attention, negativism, repetitious sentences or questions, screaming).

Study I: Nursing Home

An evaluation of 104 agitated patients with dementia was conducted. The skilled nursing home patients were recruited from 12 centers as part of a multi-center clinical trial. There were 93 Caucasians and 11 African Americans. Of the Caucasian group, 62% were women. The African American group, however, had 73% men.

Specific Findings:

- African-Americans had a significantly higher prevalence of aggressive behavior than Caucasians.
- Caucasians had a slightly higher prevalence of physically non-aggressive behaviors and verbally agitated behaviors compared with African-Americans, but the differences were not statistically significant.

Study II: Home with a Caregiver

A small group of 104 agitated patients with dementia were evaluated after being admitted to a geriatric psychiatry unit. There were 86 Caucasians and 24 African Americans. The study population included 40 men.

Specific Findings:

- In the home setting, Caucasians exhibited significantly more verbally agitated behaviors than African-Americans ($p < 0.005$) although the overall level of agitation was not significantly different between the two ethnic groups.
- No significant differences in the prevalence of aggressive and physically non-aggressive behaviors were found between African-Americans and Caucasians.

Although African American patients had a higher prevalence of aggressive agitated behavior in nursing homes than Caucasians, these differences were not elucidated in the community-based sample. Overall, the authors conclude that differences in agitated behavior appear to depend more on the setting than the patient's race.

Limitations of studies:

- The authors did not control for differences between AD and multi-infarct dementia. This may have particularly had an effect on Study I since a larger percentage of vascular dementia among African American patients may have resulted in increased aggressive behaviors.
- Severity of dementia was not controlled.
- Studies involved small sample sizes.

ASSESSMENT OF DEMENTIA AND BPSD

The actual assessment of dementia must be made before BPSD can be appropriately assessed. As stated previously, a major goal is to develop culturally accurate measures that can be utilized in all ethnic populations (GRACE, 2000). Clinicians and researchers must be aware that in the United States, ethnic groups differ from each other by language, communication, quality of education—all of which can contribute to misdiagnosis (Manly, 2002; Espino and Lewis, 1998).

A number of studies in the United States have reported a significantly higher risk of developing Alzheimer's disease in African-Americans and Hispanics as compared to Caucasians, even after correcting for years of education (GRACE, 2000). Do these reports represent an increased prevalence of dementia or, inaccurate assessments based on educational and/or literacy level? Manly et al, 2000, caution that the quality of education differs between countries, but also within each country (GRACE, 2000; Manly et al, 2000; Manly et al, 1999.) As such, matching ethnic groups on the basis of their years of education may be based on an inappropriate assumption that the quality of education is comparable. (Manly, 2000)

Another factor regarding the assessment of dementia is the caregiver-patient relationship since many scales and assessments require information from the caregiver (Sano, 2000; GRACE, 2000). Cultural differences have been noted in caregivers. For example, caregivers tend to be spouses for Caucasian patients, while caregivers tend to be children or siblings for African-American and Hispanic patients. In the future, the effect of caregiver relationship on outcome measures will need to be explored.

Approaches to Management

There have been few double-blind, placebo-controlled studies evaluating treatments of BPSD. For general considerations about specific treatments, dosing, and side effects, see Module 6. For general considerations regarding non-pharmacological treatments of BPSD, see Module 5). Further, methodologically rigorous data is lacking in the evaluation of cultural differences in the management of BPSD in the United States. Recent information has shown that racial and ethnic differences could be responsible for differences in drug metabolism, side effect profile, and treatment (Tang et al, 1998; Chang et al, 1991; Jann et al, 1989). Scientifically sound data is needed to evaluate the treatment of BPSD across racial and ethnic groups in the United States.

BPSD are common precipitants of nursing home admissions in the United States and a source of caregiver stress (Velez and Pega, 2001; Madhusoodanan, 2001; Chung and Cummings, 2000). The percentage of persons 65 years and older residing in United States nursing homes has decreased from 5.1 percent in 1990 to 4.5 percent in 2000 (US Census Bureau, 2000). Data suggest that minorities utilize nursing home care services less than non-minorities (Espino and Lewis, 1998; Walker et al, 1995; Valle, 1993). For example, data suggest that African American elderly utilize nursing homes at 50-75% the rate of Caucasians (Walker et al, 1995)

BPSD in Turkey

Studying BPSD across cultures allows the identification of similarities and differences that may be useful to determine the best approaches to management of these symptoms. Although the behavioral and psychological symptoms comprise one of the major symptomatology domains of age-associated dementia, BPSD are not yet regarded as a major health issue in Turkey or other developing countries. However, according to the latest Turkish census, the total population of Turkey is 65,666,700. The current life expectancy is 71 years (male = 69 years; female = 74 years). Those 60 years old and older represented 7% of the total population. BPSD will no doubt become a management issue in the near future. Turkish family practitioners, residents in psychiatry and neurology, and even psychiatrists and neurologists do not, in general, have sufficient experience to evaluate and treat BPSD (Eker et al, 2000).

Assessment and Frequency of BPSD

The Istanbul University, Cerrahpasa Medical School, Department of Geriatric Psychiatry is the only inpatient clinic in Istanbul. There is a memory outpatient clinic associated with this department. Since 1993 patients with AD have been referred to the outpatient clinic. One of the research objectives is to study the outpatient clinic population in order to examine behavioral and psychological symptoms in Turkish Alzheimer's patients.

In a recent study on BPSD, presented at the 2002 World Psychiatric Association Congress in Yokohama, Japan, 190 patients with probable AD (DSM-IV, 1994), admitted (consecutively to the memory outpatient clinic, were assessed. The Turkish version of the MMSE for educated and uneducated patients was used (Gungen, Ertan, Eker, et al, 1999).

Their dementia was staged using the Global Deterioration Scale (GDS) (Reisberg et al, 1982). Specific behavioral symptoms were systematically assessed by using the Behavioral Pathology in Alzheimer's Disease Rating Scale (BEHAVE-AD) (Reisberg et al, 1987).

The present study demonstrated that BPSD were found very frequently, in 91.5 % of AD cases. The BPSD occurred most frequently in stage 6 (severe dementia). The most frequently occurring symptoms in Turkish AD patients were purposeless activity, the delusion that “people are stealing things,” wandering, tearfulness and fear of being left alone.

In Turkey, patients in later stages of Alzheimer’s disease, i.e., GDS stages 5 and 6 are seen by neurologists and psychiatrists in outpatient clinics. Specialists interested in BPSD take the history and conduct physical, psychiatric, and neurological examinations. The DSM-IV and NINCDS-ADRDA are widely used. The Turkish version of the MMSE is the most widely used brief cognitive screening test; only a minority of Turkish psychiatrists and neurologists use the GDS and BEHAVE-AD.

Turkish family members are more likely to report behavioral and psychological symptoms rather than memory problems in their parents or relatives. Caregivers may under-report BPSD because they fear their relatives are mentally ill. On the other hand, their desire is not to relinquish their caregiver role or religious values. The Turkish culture has traditionally emphasized paternal authority and family loyalty, and children are typically expected to care for their parents who have dementia. Relatives who are caregivers of AD patients with BPSD do not want to place their charges in nursing homes. On the other hand, Turkey does not provide good quality services for AD patients (Eker, 1995). Patients with BPSD are usually placed in general psychiatry departments, and are treated by general psychiatrists who often lack sufficient knowledge of mental disorders in old age. There is a drastic shortage of centers that can provide care for patients with dementia and BPSD. In Turkey, patients with dementia are mostly cared for their by their spouses or the eldest daughter in their homes. They are only admitted to a specialist unit when BPSD are severe.

Approaches to Management

- Although there are no guidelines for prescribing neuroleptics in patients with dementia, they are and have been the drugs of choice for treating BPSD. Historically, haloperidol and trithioperazine have been used. Recently, atypical antipsychotics (risperidone olanzapine and quetiapine) have been used in controlling psychosis and aggressive behavior.
- SSRI’s are used to treat the depression associated with AD.
- Mood stabilizers are used in situations where first line therapy has proven unsatisfactory for treatment of BPSD.
- Although staffs in institutions are not well-educated in the use of behavioral (non-pharmacological) interventions in the treatment of BPSD, the value of these interventions is being recognized by some nursing home medical staff.
- Taking care of the elderly having AD at home project has come true in the large cities. Some educated voluntary groups are engaged in looking after these patients.
- One of the main topics of recent meetings of Turkish Psychogeriatric and National Geriatric Societies is BPSD. At these meetings, general practitioners, neurologists, psychiatrists and caregivers of persons with dementia are educated on the topic.

BPSD in India

Historical background

Historically, India has been a rural, agricultural society. A joint family system has traditionally prevailed with several generations, and often multiple families from each generation, living together. In a system with many people living together, most of whom were able-bodied and working, the vulnerable were easily cared for, and this significantly lessened the burden of care. Over the last many years things have changed and the joint family system is under stress. The emerging pattern is:

- multiple families of the same generation no longer living together
- the substantial burden of caring for frail or sick elderly falling on only one or two caregivers
- substantial, prolonged stress on individual caregivers
- animosity against both the elderly and other family members who do not share in the care giving.

Cognitive decline with age is well recognized in ancient Indian culture. Around 800 BC, a term ‘Smriti Bhransh’ was described in the Ayurvedic literature implying ‘loss of memory’ and a treatment for this condition was described. A term currently used in the Indian language to describe cognitive impairment translates literally as ‘turned 60’. This term is used to describe patients who begin to exhibit signs and symptoms of cognitive decline, whatever their actual age. Since this phrase has been part of the language for centuries, it indicates that cognitive impairment was considered to be a part of aging, not a disease. In some parts of the southern state of Kerala, a term “Chinnan” is used to denote dementia-like condition (Shaji et al, 2002). The symptoms, considered to be indicative of affliction with “Chinnan”, include inappropriate behavior, childish behavior, and incontinence apart from failing memory. Again, this is considered part of the aging process rather than a disease during old age.

BPSD and Burden of Care

The 10/66 dementia research group studied the care arrangements for dementia patients. The unpublished data includes information on 179 patients from India. Most caregivers were women, living with the person with dementia in extended family households. More than half of households included a child. However, despite the traditional apparatus of family care, levels of caregiver strain were at least as high as in the developed world. Many had cut back on work hours to be caregivers but still faced the additional expense of paid caregivers and health services. Findings of the study suggest that older people in India, like other developing countries, are indivisible from their younger family members. The high levels of family strain identified in this study feed into the cycle of disadvantage, and should thus be a concern for policymakers.

Nature and Prevalence of BPSD

Based on early reports from centers engaged in dementia research, the prevalence of BPSD in India may not be very different from that found in other parts of the world. The Thrissur Center of the 10/66 dementia research group assessed BPSD in a sample of 17 patients meeting the DSM-IV diagnosis of Alzheimer’s disease presented at the Annual Conference of ARDSI at New Delhi in 2000. Data from this study is compared with the data from the two other reports from the 10/66 researchers presented by Dr Mathew Verghese from Bangalore and Dr. S. Shaji from Cochin at the Annual Conference of ARDSI at Goa in 2002. See Table 3 for details.

All three studies utilized the BEHAVE-AD to make their prospective assessments.

Table 3. BPSD – PRELIMINARY REPORTS FROM INDIA

Behave – AD Items	Thrissur Community Sample with AD (N =17)	Bangalore Outpatients with Dementia (N=31)	Cochin Outpatients with AD (N=40)
One or more BPSD	88.2%	83.9%	-----
Paranoid and delusional ideation	53%	35.5%	65%

Hallucinations	29%	12.9%	25%
Activity disturbances	88.2%	58.1%	73%
Aggressiveness	76.5%	64.5%	78%
Diurnal rhythm disturbances	58.8%	51.6%	60%
Affective disturbances	29.4 %	32.3%	25%
Anxiety and phobias	23.5%	6.5%	36%

High prevalence of BPSD in these samples suggests that these symptoms are common in India too. These symptoms cause severe stress on the co-resident caregivers, who receive no support or guidance from the existing health care delivery system. In a qualitative study (Shaji et al, 2003) caregivers described BPSD and incontinence as the most distressing and difficult to manage symptoms.

Aggression, agitation and wandering are the most commonly seen BPSD. The prevalence of these symptoms is comparable to the frequency reported for other countries (Homma et al, 2000; Mangone et al, 2000) and from the western developed countries. However, more information is needed from larger representative community samples of patients from other parts of India before making useful comparisons about individuals' symptoms. The available information comes from preliminary studies conducted in South India.

Approaches to Management

The prevailing low level of public awareness of dementia in India has many implications. It reduces the chances of correct identification and management of BPSD in the community. BPSD are frequently misinterpreted by the relatives as deliberate misbehavior by the patient. BPSD are sometimes misinterpreted by others as evidence of poor quality of care provided by the family. Allegations of this kind add to the misery of the caregiver and frequently result in interpersonal problems.

Since elderly patients with AD (or other types of dementia) are not often brought to a physician's attention, many BPSD go untreated. Even for those BPSD for which adequate treatments are available, it is hard to find a physician skilled in their diagnosis and treatment. There are no support groups to help family members and consequently both the patient and their families can suffer.

Given the prospect of the increase in the number of old people affected by dementia in the developing world, we need to develop strategies that will assist families caring for persons with dementia at home. The development of simple, culturally-acceptable, non-pharmacological interventions for the management of BPSD in the community would be an important step in this direction. Once the feasibility and cost effectiveness of such interventions are established, they could provide an important ingredient of community based dementia care services in developing countries. Informing and educating the family members and giving them continued support and guidance in managing BPSD at home has the potential for wide application in developing countries.

The Indian network of the multi-center 10/66 Dementia Research Group is developing community-based interventions to be administered by multi-purpose health workers (MPHWs). The health and social welfare systems of several developing countries utilize the services of community-based health workers. Workers who have achieved a basic standard of education receive additional training in simple health care programs. They are generally assigned to a catchment area. They get to know all of the families in their local area, and visit their homes principally to monitor maternal and child health and development. MPHWs are in many developing regions the only generally available outreach arm of health care services as primary care teams often do not venture outside of their clinics. In principle, MPHWs could receive appropriate training and extend their role

to include basic family and community interventions for people with dementia. The training package for MPHWs would necessarily include at least three components: 1) general information about dementia; 2) training regarding detection of dementia in the community; and, 3) training in the implementation of various interventions. Management of BPSD, especially non-pharmacological approaches, would be given due emphasis in this intervention. Since many caregivers have low literacy levels, special educational aids and teaching materials would be provided. Such educational material would be developed locally and adapted to the cultural and linguistic differences.

There are changes occurring in India too. The Alzheimer's and Related Disorders Society of India (ARDSI) with many chapters all over India has, to some extent, succeeded in increasing the level of awareness about dementia. The plight of the families who look after relatives with dementia at home is being recognized and discussed. Specialized dementia care services, which focus on the management of BPSD, are likely to come up in many general hospitals which are usually located in the urban areas. This is primarily because of increasing demand for such services from the educated sections of the society. In addition, the availability of many drugs useful in the management of BPSD has brightened the prospect of better management of these symptoms. The prospect of networking centers that provide specialized dementia care is also being discussed. It is anticipated that abundant information about the management of BPSD will be available in the next few years, once specialized dementia care services are established in many general hospitals in India.

BPSD in Argentina

Population aging is a process that is especially accelerated in some parts of the world. Latin America has to confront population "graying" in the context of an emerging economy. Countries such as Chile, Argentina, Uruguay and Mexico face the aging of their populations. In other countries, including Haiti, Bolivia and Guatemala, population aging will be delayed by continued high birth rates. Even so, by 2002, the elderly population will be increasing more rapidly than other populations in the world (Mangone et al, 2000).

Argentina is populated by a mixture of different ethnic cultures; however, unlike other Latin American countries, most Argentinean people are of central and west European descent. The second largest ethnic group is the mestizos, a fusion of European immigrants and native aborigines, followed by the native aborigines who live in special reserves. The North and West are populated by a greater proportion of natives and mestizos living in rural areas, the center, and the southeast, by European descendants.

Argentina has one of the largest elderly populations in Latin America due to a life expectancy of 73.9 years (World Bank, 2002). In Buenos Aires, the elderly constitute 20.6% of the population. According to the 2001 Argentinean National Census, 4.7 million of the total population of 37.5 million persons is older than 60 years. The urban population was 88.3% of the total. The adult illiteracy rate was 3.1% in the population over 15 years old and 8.6% over 65. However, a high percentage of persons older than 60 years are functionally illiterate, with fewer than four years of schooling. The low literacy rate of this group makes it difficult to assess the cognitive abilities of these people. Clinicians must adapt assessment instruments not only to the patients' language and culture, but also to their educational level.

Argentineans have traditionally been involved in caring for the elderly. In 1971, the National Government created the Institute for the Elderly (ISSPJP) to take care of the social and medical needs of retired people. The Institute provides care for approximately 70% of individuals over 60 years old and 90% of those over 75 years old.

A pilot study conducted by the 10/66 dementia research group was developed in Buenos Aires in 2001. The economic cost of AD in Argentina (Allegri et al, 2002) ranged from \$6,739 in patients with mild AD, to \$9,541 in severe AD patients. The total annual estimated cost was \$4,000,000,000 each year. With projected increases in the number of persons at risk for developing AD in Latin America, the economic impact of the disease in the future will be highly significant. The direct costs of the disease increased with cognitive deterioration for the community-dwelling group-- outpatients \$3,189; and for institutionalized patients \$11,270.

Most senior citizens live at home with their family; approximately 15% are institutionalized in nursing homes. This arrangement may result partly from the tradition of extended families, but also evolves from the high cost of nursing home care.

Of the 20,000 nursing home beds in Buenos Aires and the greater Buenos Aires area, only 5% are specialized neurology or psychiatry beds. From 42% - 50% of patients are in unspecialized nursing homes, while 64% of those in specialized nursing homes have dementia (Taragano et al., 1995). Thus, 13,500 of the available nursing home beds in Buenos Aires and its greater area are for patients with dementia.

The economic problems in Argentina combined with the low incomes of certain social groups further complicate the assessment and treatment of persons with dementia.

Frequency of BPSD

In Argentina, the Neuropsychiatric Inventory and the Behavioral Pathology in Alzheimer's Disease Rating Scale (BEHAVE-AD) are the most common tools used to assess BPSD. A study by Pollero et al, in press, has looked at the frequency of BPSD (87.5%) in 72 patients with AD using the Neuropsychiatric Inventory NPI-Q (Kaufert et al, 2000) (see Table 1). The most frequent symptoms were apathy, irritability, depression and anxiety.

Table 4: BPSD in 72 patients with AD (NPI-Q)

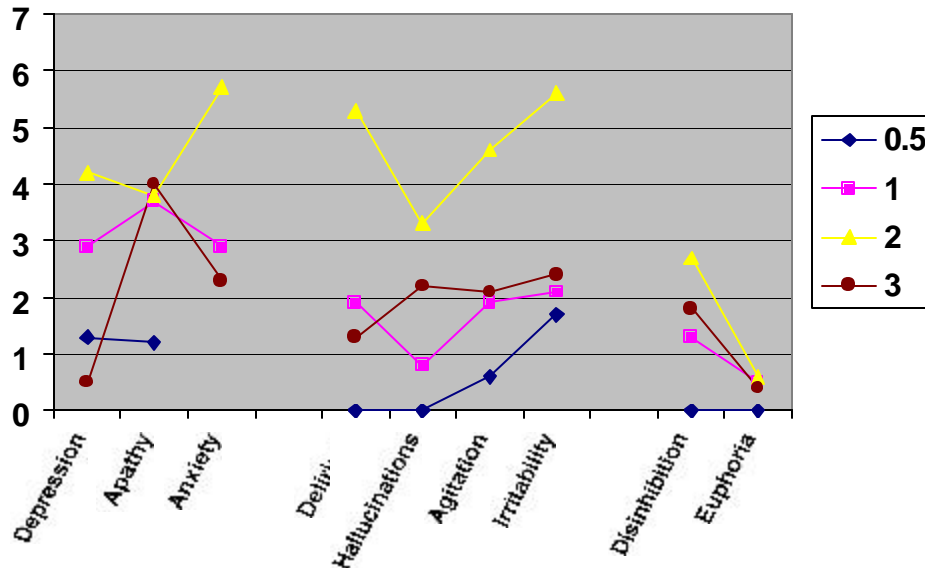
BPSD	<i>M ± SD</i>	<i>n</i>	<i>% Patients</i>
Delusions	2.11 (+ 3.7)	22	30.5
Hallucinations	1.8 (+ 3.4)	22	30.5
Agitation	2.3 (+ 4)	24	33.3
Depression	2.2 (+ 3.3)	33	45.8
Anxiety	3.1 (+ 4)	36	50.0
Euphoria	0.4 (+ 1.9)	6	8.3
Apathy	3.7 (+ 4.7)	40	55.5
Disinhibition	1.6 (+ 3.4)	17	23.6
Irritability	2.9 (+ 3.8)	40	55.5
Motor Behaviors	1.5 (+ 3.5)	15	20.8
Sleep Disorders	2.1 (+ 4)	21	29.1
Appetite	1.3 (+ 3.1)	15	20.8

The NPI range was 0 -12 (Frequency x Severity)

The sample was divided by the Clinical Dementia Rating (CDR, Hughes et al, 1982) from 0.5 to 3 (see Figure 1). Mood symptoms were predominant in very mild and mild dementia, while psychotic

symptoms were predominant in moderate dementia. Apathy was the symptom most prevalent in all levels of dementia.

Figure 1:
Neuropsychiatric symptoms by level of dementia (CDR)



The NPI range was 0-12 (Frequency x Severity)
(Clustered by Symptoms - Depression, Psychosis, or Frontal)

BPSD and Caregiver Burden

The relationship between the caregivers' feelings of burden and the cognitive, behavioral, and functional impairment of patients with dementia has been investigated in an Argentinean study of 85 patients with probable AD (Mangone et al., 1993). BPSD and caregiver burden were assessed using the Functional Dementia Scale in the Blessed Dementia Scale and an adapted version of the Zarit Burden Interview, respectively. The study showed that caregiver reports of patients exhibiting BPSD were the best predictors of burden on the part of the caregiver. Aggressiveness, pacing, moaning or shouting were among the items on the Functional Dementia Scale that were identified as independent predictors of caregiver burden. Interestingly, the study found that caregiver burden may foster a growing intolerance of patients' functional limitations, leading to frustration on the part of the patient which, coupled with impulsivity, impaired judgment and low self-esteem, can lead to agitated behavior or catastrophic reactions.

Caregiver characteristics predictive of caregiver burden were age and level of education. Younger, more educated caregivers experienced uncertainty and inability to cope. The older the caregiver the greater the feeling of obligation to care for the patient; thus, older caregivers were more likely to neglect their own health and reject respite care offered to them. Direct assessment of patients indicated that their level of functional performance (primarily in shopping, feeding, dressing and ambulation) was often underestimated by caregivers.

Approaches to Management

-
- In Argentina, there are subtle differences in the frequency of BPSD for which caregivers seek immediate treatment, depending on the caregivers' cultural background.
-

Treatment depends on psychosocial and demographic factors.

1. Caregivers living in Buenos Aires, the surrounding area, or in principal cities, such as Cordoba, Rosario, and Mendoza, are more likely to request treatment for the following BPSD:
 - a. Agitated behavior (e.g., compulsive behavior, irritability, catastrophic reactions)
 - b. Pacing or wandering – this form of motor agitation is one of the most frequent predictors of burden among caregivers living in large cities, but not of those in the provinces, where most patients live in a house with room enough to pace and without the danger of becoming lost.
 - c. Sexual problems (e.g., sexual disinhibition, sexual misdemeanors) – these symptoms are less problematic in the provinces because, culturally, caregivers are too embarrassed to confess that their relative has sexual problems.
 - d. Apathy and depression – surprisingly, apathy was more frequently reported than depression as a cause of caregiver burden
 - e. Delusions – ‘my house is not my home’ and misidentification of the caregiver, particularly if the caregiver is a spouse, are the most troublesome
 - f. Sleep disorders (e.g., insomnia, rapid-eye-movement sleep behavior disorder)
2. Illiterate caregivers, most of whom are mestizos or natives, living in smaller cities and rural areas, are more tolerant of BPSD and seek treatment only when behavioral problems become overwhelming. These caregivers are convinced they are obliged to care for their relative and are likely to keep others from knowing the difficulty of their care-giving situation. They also rely on prayer and their faith to handle problems related to caregiver burden. The symptoms for which these caregivers most frequently request treatment are:
 - a. Aggressiveness
 - b. Sleep disorders
 - c. Delusions or hallucinations.

General practitioners consider cognitive symptoms and BPSD to be part of the normal aging process and they do not perform a meticulous diagnosis. Specialists (neurologists, psychiatrists and geriatricians), are unevenly distributed in the country, most of them located within large towns. There is a shortage of specialists in small towns and in the rural areas. The facilities needed for accurate diagnosis are scarce, except within Buenos Aires and a few other large provincial cities. Few young physicians are properly trained in dementia diagnosis and treatment during their medical residency, and there are few specialists trained in dementia.

The pharmacological treatment approaches are similar to those in the USA... There are support groups (Association against Alzheimer's disease and Related Disorders of Argentina – ALMA) to help family members, but many are reluctant to use them. Clearly, more public education about dementia for lay people is needed throughout Argentina (Mangone et al 2000).

BPSD in Taiwan

Alzheimer's disease is the most common cause of dementia in Taiwan and many patients with AD manifest BPSD. Until recently, most research has focused on the neurobiological aspects of dementia and cognitive impairment, while BPSD have been relatively neglected.

Recent studies show that Taiwanese AD patients exhibit many of the BPSD described in studies using European or USA populations:

Table 5. BPSD in Taiwan (Liu, 1999; 1995; Tsai, 1997; Hwang, 2000; 1997; 1996):

BPSD	Study in Psychiatry Tsai, 1997; Hwang, 2000; 1997; 1996	Study in Neurology (Liu, 1999)
Depression		
Depressive symptoms		22.0%
Major depression		5.0%
Minor depression		11.3%
Anxiety		35.3%
Delusions	62.9% (Hwang, 1996)	27.2%
Delusion of theft	55.6% (Hwang, 1996)	27.2%
Persecutory delusion	24.1% (Hwang, 1996)	28.0%
Delusion of infidelity	16.7% (Hwang, 1996) 15.8 % (Tsai, 1997)	3.4
Delusion of abandonment	9.3(Hwang, 1996)	2.2%
Misidentification of someone in the house	22% (Liu, 1995;Hwang,1996)	2.2%
Misidentification of people	111.1% (Liu, 1995;Hwang, 1996)	3.4%
Misidentification of TV	9.3% (Liu, 1995)	
Misidentification of mirror image	7.4% (Liu, 1995)	
Misidentification of the house is not patient's home	16.7 (Liu, 1995)	16.5%
Hallucination	25.9% (Hwang, 1996)	
Visual Hallucination	14.8% (Hwang, 1996)	19.5%
Auditory Hallucination	16.7% (Hwang, 1996)	11.6%
Tactile Hallucination		0.7%
Olfactory Hallucination		0.7%
Hyperphagia	30.8% (Tsai, 1996) 36.0% (Hwang, 1996)	
Pica	7.7% (Tsai,1996)	
Verbal aggression		21.4%
Violence	57.4% (Tsai,1996) 54.7% (Hwang, 1996)	10.3%
Hoarding	22.6% (Tsai,1998)	
Getting lost	45.3% (Hwang, 1997)	25.8%
Repetitive phenomena	62.7% (Hwang, 1997) 56.0% (Hwang, 1997)	26.4%
Sleep disturbance	61.3% (Hwang, 1997)	23.4%
Inappropriate sexual behavior	10.7% (Hwang, 1997)	

A number of these symptoms (wandering, hyperphagia and sleep disturbance) were associated with the severity of cognitive impairment (Hwang et al., 1997). Studies in Hong Kong also revealed that BPSD are highly prevalent. Some symptoms are stage specific, most behavioral problems peak in the moderate stage and attenuate as dementia progresses.

BPSD in Africa and the Caribbean

Prevalence and presentation

Differences in the prevalence and levels of tolerance of BPSD in a Nigerian community (the Yoruba people living in Ibadan, Nigeria), a Jamaican community (in Kingston, Jamaica) and an African-American community (living in Indianapolis, Indiana, USA) have been described (Hendrie et al., 1996). Ibadan is a major Nigerian city of more than 1 million people; however, despite its urban setting, the Yoruba community functions much like a village. The Jamaican population studied lives in a poor suburb of Kingston, and the African-American population in a moderate-size city of approximately 1 million people.

Table 6. Prevalence (%) of selected BPSD and functional deficits in the USA, Jamaica and Nigeria. Reprinted with permission from Hendrie et al., 1996.

BPSD and Functional Deficits	Indianapolis Indiana, USA (n=50)	Kingston Jamaica (n=18)	Ibadan Nigeria (n=28)
Personal care			
Feeds self	57	64	86
Dresses self	42	28	75
Personal hygiene	42	28	75
Lost in community	22	50	15
Changes in personality			
Any change*	64	29	37
Stubborn or obstinate	72	50	26
Irritable or angry	52	33	19
Inappropriate behavior in public	17	19	26
Psychiatric symptoms			
Depression	14	6	4
Delusions	21	18	4
Hallucinations	4	22	4

*Reflects the clinician's opinion as to whether the change significantly affected caregiving. The percentage in this category may be lower than that for the other subcategories.

Data regarding the prevalence of BPSD in the different communities were gathered from caregiver reports. The findings are presented in Table 4. It should be borne in mind that these data are not corrected for age and severity of dementia among populations, and so direct comparison between groups is difficult. Dementia was most severe in the Jamaican sample (previously identified dementia patients attending a medical clinic) and least severe in the Nigerian sample (patients with dementia identified as part of a community study).

The comparison showed that:

- African-American and Jamaican patients were less likely than Nigerians to complete tasks related to personal care (functional ability) and more likely to become lost in the community.
- Caregivers of African-American patients were more likely to report changes in personality – whether this reflects a real difference in the number of patients with personality changes or a difference in the level of tolerance to such symptoms is not clear.
- Nigerian caregivers were clearly more concerned than their counterparts in the USA and Jamaica by their demented relatives becoming involved in situations they regarded as embarrassing.

- Neither Nigerian nor Jamaican caregivers reported depression associated with dementia as a significant symptom.

Approaches to Management

In the study reported above (Hendrie et al, 1996), data on most troublesome symptoms reported by caregivers and most likely treatments were obtained from the study investigators who were also involved in providing healthcare to these elderly populations. Table 5 summarizes these findings.

Table 7. Treatment of BPSD in Jamaica and Nigeria. Adapted with permission from Hendrie et al, 1996

	Kingston Jamaica	Ibadan, Nigeria
Recognized	Yes	Yes
Treatment available	Yes	Partially
Treatment sought	Yes	Seldom
More troublesome symptoms:	Agitation	Agitation
	Wandering	Violence
	Violence	Delusions
	Sleeplessness	Hallucinations
Type of treatment:	Pharmacotherapy	Little direct
	and milieu therapy	treatment

Treatment depends largely on psychosocial and demographic factors, as has been noted earlier. In both Jamaican and Nigerian societies, the elderly are held in high regard and considered as repositories of knowledge; thus a considerable degree of tolerance towards BPSD is seen. Nigerians have a saying that in old age, people become children again, despite their wisdom.

Early cognitive symptoms and BPSD are often misinterpreted by caregivers. In Jamaica, decreased cognitive function is often misunderstood by relatives and reported as 'difficult' behavior. Repeated question asking is seen as 'attention-seeking' – a finding reported in a number of studies of caregiver perceptions in European and USA populations. In Nigeria, caregivers often do not report symptoms such as hallucinations and delusions in their demented relative for fear of a diagnosis of mental illness – something that carries considerable stigma in Yoruba culture.

In Ibadan, Nigeria, there are no nursing homes for elderly demented patients and consequently, all demented patients are managed at home by family members. Demented individuals are only brought to hospital for concomitant illnesses such as fevers or pneumonia, and direct treatment of BPSD at home is unusual, although occasionally phenothiazines are prescribed.

In contrast, Jamaicans have access to primary care and specialist physicians, and treatment approaches are similar to those in the USA. There is little non-physician, community-based support. Treatment for the behavioral aspects of BPSD is primarily with milieu therapy (see Module 5), although pharmacotherapy is also used.

As part of the Indianapolis-Ibadan dementia project a caregiver support group led by a physician and nurse has now been established. This support group has been meeting weekly for the past 18 months and, to our knowledge, is the first of its kind in Nigeria. It has been very well received by the caregivers. Observers have been impressed with the level of understanding of the disease process displayed by the caregivers after simple educational presentations. As in Western countries, the major focus of the meetings is on managing the aberrant behaviors associated with AD including

behavioral disturbances. We are encouraged that this is a care model that could be utilized inexpensively in other third world countries.

BPSD in México

Background

Mexican society is a mixture of different cultures. Most Mexican are descendants of the Spanish and native fusions. However within its vast territory, over 60 different native languages are still spoken, each one with its own particular culture and beliefs.

Demographically México is rapidly changing into a country where the children and the young no longer dominate the age structure. The expected growth of our elders is bound to increase almost threefold in the next 20 years, with its concomitant burden to the economy and service delivery for the aged.

Dementia's prevalence in Mexico is very similar to most countries in the world (Gutierrez et al, 2001), but it is conceivable that Vascular Dementia and Mixed Dementias are more common due to the fact that risk factors for vascular disease in general are poorly tackled in the realm of Mexican general health systems.

In 2001, the Mexican Ministry of Health developed a National Plan under the guidance and direction of the new government. The health of the elderly and those that will develop dementia are the top priorities. A National Plan for dementia, within which BPSD management and training take priority, in Spanish, can be accessed at <http://www.ssa.gob/conadic>.

Data from a large epidemiological study not yet published on dementias in Mexico show that BPSD is a main source of concern and burden for caregivers in Mexico City with the following behaviors noted by families as the most important and problematic for them:

- agitated behaviors including aggression
- depression and apathy
- sleeping disorders
- psychotic phenomenology

Approaches to management

- Management has been limited to empiric treatment for BPSD as a whole and generally disregarded as important by primary care physicians and specialists.
- Pharmacological management of agitated behaviors and psychotic symptoms mainly with traditional neuroleptics (haloperidol) or benzodiazepines (diazepam). When the treating physician considered the use of antidepressants, the main choice has been Tricyclics (imipramine) or SSRIs (fluoxetine).
- Hired home help is common. The nurses or assistant nurses hired for this purpose have no educational background on dementing illnesses and occasionally sedate patient with whatever medication they can get hold on.

The National Plan on dementias addresses the severe deficiencies in the management of BPSD in several ways:

- An educational package is being produced for training trainers. It includes the most recent data and research on BPSD. The packages are aimed at primary care level. Physicians, nurses, social workers can become trainers for this material.

- Training courses on BPSD management, using a clear and approved methodology have been established with approval by the National University. In 2001, eight courses were given training 200 nurses. Many of them will be work as assistants in nursing homes, or will be hired by families to provide assistance at the patient's residence. Twelve courses are planed for 2002.
- An educational package is being developed for use with families from a partnership between the Ministry of Health and the Mexican Alzheimer's Association.

Educational training interventions in BPSD

Educational training interventions in BPSD offer a means of correcting inappropriate behaviors of patients with dementia from different ethnic-cultural backgrounds with associated problems. This approach, developed in Israel by Tropper et al. 1987, improves general affective and emotional states of patients. It enables those dwelling in the community to remain in their home milieu for several years. It helps those institutionalized to better cope with activities of daily living even in their new environment.

The efficacy of educational training interventions in BPSD is highly relevant for countries facing ethnic and acculturation problems of mass immigration, including Germany, Israel, the USA, Canada and Australia. Israel, as an example, is a country of continuous immigration where 94% of the elderly population were not born in Israel and are bi-, tri- or multi-lingual.

Professional groups participating in and studying educational training interventions in BPSD comprise:

- geriatric psychiatrists
- family physicians
- geriatricians
- psychiatrists
- psychologists
- social workers
- public nurses
- occupational therapists
- staff in geriatric day centers and senior citizen centers
- family members
- volunteers.

Educational training interventions in BPSD have been, and continue to be, applied as a multi-disciplinary approach in various stages of dementia and related disorders. In the current format, educational training interventions in BPSD are oriented towards four symptoms encountered in the demented elderly:

In the behavioral domain:

- wandering
- confusion

In the cognitive domain:

- prosopagnosia
- confabulation

Aims of educational training interventions in BPSD:

- To improve knowledge and understanding of the topic; for example, the typology of wandering in dementia (pottering; trailing; checking; aimless wandering directed towards an appropriate purpose; inappropriate frequent walking towards inappropriate purpose; night-time wandering; attempts to leave the home; excessive activity). See example below.
- To identify needs and develop culturally appropriate professional skills in those who will promote and perform this intervention and training
- To develop a training initiative for caregivers and patients' relatives
- To organize 'training and education days' in the main cities, with the aim of ensuring a rational, quick education program
- To recruit participants to take part in training courses
- To organize 'educational support groups' which will also contribute to the program and communicate with elderly patients in their native language
- To organize local meetings within regions.

Implementation of educational training interventions in BPSD

Educational training interventions in BPSD in the Israeli program utilize a range of approaches:

- information gathering
- illustrative case studies
- videos
- group discussions
- questionnaires
- suggested reading
- integration into every patient's care plan
- special educational materials (e.g., pamphlets, reminders, essential guidelines, short booklets, maps, tables and figures)
- physical activities
- participation in memory clinics' activities.

Educational training interventions in BPSD are used directly with patients, individually or in group settings, with results that appear to be rewarding. A uniformly structured approach is used in the patient's native language and not necessarily in the official language of the country. Trainers are therefore expected to be fluent in the native tongue of the cultural ethnic groups of elderly patients (e.g., Russian for elderly immigrants who came to Israel from the former Soviet Union)

Educational training interventions in BPSD include special thematic topics, such as Direction – Showing Road Maps, which aim to stimulate remaining strengths, once again taking into account the cultural and ethnic background of the patient.

Educational training interventions in BPSD have been well received by caregivers. They acknowledge that the approach represents an inexpensive and efficient intervention which:

- ameliorates patients' behaviors
- improves patients' activities of daily life
- reduces caregivers' frustration and stress
- gives family members the feeling of being helpful in the treatment of their close and beloved relatives.

An example of educational training interventions in wandering (see also Module 5), which is printed and distributed in Hebrew, Russian and Romanian, is shown in the box below.

Essential guide to Educational Training Interventions – an example for managing wandering behavior

Wandering is a lengthy period of purposeless, disoriented movement without awareness of one's behavior. This is a common behavioral and topographic memory disorder beginning with difficulties of orientation within a patient's apartment or house and culminating in states in which wandering patients are no longer able to find their way back home.

The essential guide provides guidelines for patients, their families and geriatric institutions with ways to prevent and cope with wandering:

- educate family members, caregivers, staff members (see 'Aims of educational training interventions')
- diagnose, differentiate and eliminate other disorders that cause wandering:
 - acute medical illnesses
 - drug actions and interactions
 - avoidance of being alone
 - navigational disability
 - diurnal rhythm disturbances

Essential guide to Educational Training Interventions – an example for managing wandering behavior (continued)

- faulty goal-directed behavior
 - excess activity
 - separation anxiety
- milieu therapy oriented towards optimal behavior (home and institutional management)
- initiate diverse activities in various settings:
 - community centers
 - day hospitals
 - homes for the elderly
 - geriatric hospitals
 - senior citizen centers
 - memory clinics: topographic memory skills training
- secure an environment with an adequate visual zone, enabling the patient to recognize anything of importance, such as:
 - the toilet/bathroom
 - the kitchen/dining room
 - doors
 - the bedroom
- install road, stop and explanatory directional signs in the immediate surroundings (garden, neighborhood, etc.)
- program 'planned wandering' guided by a relative or caregiver, who is familiar with the patient's native or mostly spoken language, and all within a safe environmental frame
- supply patients with easily recognizable identification signs:
 - bracelets
 - tags
 - clothing labels
- compile (for police offices) a database of patients who might get lost in different regions where patients are living (i.e., wandering registries)
- notify neighbors, Mogen David Adom (the Israeli equivalent of the Red Cross) and other services of any patient at risk.

References and recommended reading

ASPECTS OF BPSD LIKELY TO VARY ACROSS CULTURES

- Arai Y. Cultural Differences (letter to the editor). *Int J Geriatr Psychiatry* 2000; 15:376.
- Baumgarten M, Backer P, Gauthier S. Validity and reliability of the Dementia Behavior Disturbance Scale. *J Am Geriatr Soc* 1990; 38: 221–226.
- Cohen C, Magai C. Racial differences in neuropsychiatric symptoms among dementia outpatients. *Am J Geriatr Psychiatry* 1999; 7:57-63.
- Cohen-Mansfield J, Marx MS, Rosenthal AS. A description of agitation in a nursing home. *J Gerontol* 1989; 44: M77–M84.
- Discussion 7. Behavioral and Psychological Signs and Symptoms of Dementia: Implications for Research and Treatment. *Int Psychogeriatr* 1996; 8: 491-492.
- Hall K, Hendrie H, Rodgers D, et al. The development of a dementia screening interview in two distinct languages. *Int J Methods Psychiatry Res* 1993; 3: 1–28.
- Hall K, Ogunniyi A, Hendrie H, et al. A cross-cultural community-based study of dementias: Methods and performance of the survey instrument Indianapolis, U.S.A., and Ibadan, Nigeria. *Int J Methods Psychiatry Res* 1996; 6: 129–142.
- Homma A. Parameters considered in multinational clinical drug trials. *Int Psychogeriatr* 1996; 8 (Suppl 2): 165–167.
- Karasawa A, Kasahara H, Kato M. The role of psychiatric outpatient clinics for demented elderly patients. *Jpn J Psychiat Treat* 1988; 3: 847–853.
- Mangone C, Bueno A, Allegri R, Arizaga R, Nitrini R, et al. Behavioral and Psychological Symptoms of Dementia in Latin America. *International Psychogeriatrics*, 2000. 2, (Suppl 1), 415-418.
- Osuntokun B, Hendrie H, Hall K, et al. Cross-cultural studies in Alzheimer's disease. *Ethn Dis* 1992; 2: 352–357.
- Patterson M, Schnell A, Martin R, et al. Assessment of behavioral and affective symptoms in Alzheimer's disease. *J Geriatr Psychiatry Neurol* 1990; 3: 21–30.
- Ray W, Taylor J, Lichtenstein M, Meador K. The nursing home behavior problem scale. *J Gerontol* 1992; 47:M9-M16.
- Reisberg B, Franssen E, Salan S, et al. Stage-specific incidence of potentially remedial behavioral symptoms in aging and Alzheimer's disease. A study of 120 patients using the BEHAVE-AD. *Bull Clin Neurosci* 1989; 54: 95–112.
- Rosen J, Burgio L, Killar M, et al. The Pittsburgh Agitation Scale. *Am J Geriatr Psychiatry* 1994; 2: 52–59.
- Teri L, Truaz P, Logsdon R, et al. Assessment of behavioral problems in dementia: The Revised Memory and Behavior Problems Checklist. *Psychol Aging* 1992; 7: 622–631.
- Valle R. Culture-fair behavioral symptom differential assessment and intervention in dementing illness. *Alzheimer Dis Assoc Disord* 1994; 8 (Suppl 3): 21–45.

CROSS-CULTURAL PERSPECTIVES

- Allegri R, Sarasola D, Serrano C, Lon L, Butman J, et al. Economic costs of Alzheimer's disease in Argentina. Paper presented in the 18th International Conference of Alzheimer's Disease International, Barcelona, 2002.
- Alzheimer's Association. Alzheimer's disease: The Costs to US Businesses in 2002.
- Arean P and Gallagher-Thompson D. Issues and recommendations for the recruitment and retention of older ethnic minority adults in clinical research. *J Consult Clin Psych* 1996; 67:875-880.
- Argentine Consortium for the Study of the Dementias (CAED). Guidelines for dementia diagnosis and for cortical dementia of the Alzheimer type. *Rev Neurol Argent* 1995; 20: 106–112.
- Argentinean National Census. INDEC 2001.

Bonner L, Peskind E. Pharmacologic treatments of dementia. *Medical Clinics of North America* 2002; 86 (3): 657-74.

Chandra V. Cross-cultural perspectives: India. *Int Psychogeriatr* 1996; 8 (Suppl 3): 479–481.

Chandra V, Ganguli M, Ratcliff G, et al. Studies of the epidemiology of dementia: Comparisons between developed and developing countries: 1. General conceptual and methodological issues. *Aging Clin Exp Res* 1994; 6: 307–321.

Chen J, Borson S, Scanlan J. Stage-specific prevalence of behavioral symptoms in Alzheimer's disease in a multi-ethnic community sample. *Am J Geriatr Psychiatry* 2000; 8(2):123-133.

Chang W, Jann M, Hwu H, et al. Ethnic comparison of haloperidol and reduced haloperidol plasma levels: Taiwan Chinese versus American non-Chinese. *J Formos Med Assoc* 1991; 90: 572-578.

Chung J, Cummings J. Neurobehavioral and neuropsychiatric symptoms in Alzheimer's disease. *Neurological Clinics* 2000; 18(4): 829-46.

Class C, Unverzagt F, Gao S, et al. Psychiatric disorders in African American nursing home residents. *Am J Psychiatry* 1996; 1 (Suppl 3): 677–686.

Cohen-Mansfield J, Marx M, Rosenthal A. A description of agitation in a nursing home. *J Gerontol: Med Sci* 1989; 44: M77–M84.

Cohen C, Carlin L. Racial differences in clinical and social variables among patients evaluated in a dementia assessment center. *J Natl Med Assoc* 1993; 85:379-194.

Cohen C, Weston R, Hyland K. Mood psychoses, and agitation among Afro-American, Afro-Caribbean, and Caucasian dementia patients: Final Report. New York State Dept. of Health, 1996.

Cohen C, Magai C. Racial differences in neuropsychiatric symptoms among dementia outpatients. *Am J Geriatr Psychiatry* 1999; 7: 57-63.

Coleman E, Tyll L, LaCroix A, et al. Recruiting African-American older adults for a community-based health promotion intervention: which strategies are effective? *A J Prev Med* 1997;13:51-56.

Cooper J, Mangiest D, Wexler PG. Relation of cognitive status and abnormal behavior in Alzheimer's disease. *J Am Geriatr Soc* 1991; 38: 867-870.

Deutsch L, Bylsma F, Rovner B, et al. Psychosis and physical aggression in probable Alzheimer's disease. *Am J Psychiatry* 1991; 148:1159-1163.

Espino D, Lewis R. Dementia in older minority populations. *Am J Geriatr Psychiatry* 1998; 6:S19-S25.

Directorate of social work and care. Old age homes and nursing homes in Turkey. 2000, Prime Ministry: Ankara, Turkey.

Eker E. (1995), Services for elderly care in Turkey. Presented at the Seventh Congress of the International Psychogeriatric Association, Sydney, Australia.

Eker E, Ertan T. Behavioral and Psychological Symptoms of dementia in Eastern and Southeastern Europe and the Middle East. *Int Psychogeriatr* 2000;12 (Suppl1):409-413.

Federal Interagency Forum on Aging-Related Statistics. Older Americans 2000: Key Indicators of Well-Being. Federal Interagency Forum on Aging-Related Statistics, Washington, DC: U.S. Government Printing Office. August 2000.

GRACE Conference (Genetics, Response, and Cognitive Enhancers: Implications for Alzheimer's Disease), Bethesda, Maryland, December 2-3, 2000.

Güngen C, Ertan T, Eker E, et al (1999). The standardized Mini Mental State Examination in Turkish. In: Ninth Congress of the IPA, 15-20 August, Vancouver, Canada.

Hall W. Representation of blacks, women and the very elderly in 28 major randomized clinical trials. *Ethnicity and Disease* 1999; 3: 333-340.

Hendrie H, Baiyewu O, Edemire D, Prince C. Cross-cultural perspectives: Caribbean, native American and Yoruba. *Int Psychogeriatr* 1996; 8 (Suppl 3): 483–486.

Hendrie H, Osuntokun B, Hall K, et al. The prevalence of Alzheimer's disease and dementia in two communities: Nigerian Africans and African Americans. *Am J Psychiatry* 1995; 152: 1485–1492.

Homma A, Woo J, Chiu H, Hoek K. Behavioral and psychological symptoms of dementia in Japan and the Asian Pacific region. *Int Psychogeriatr* 2000; 12 (Suppl 1): 419-422.

Homma A. Parameters considered in multinational clinical drug trials. *Int Psychogeriatr* 1996; 8 (Suppl 2): 165–167.

Hughes C, Berg L, Danziger L, Coben L, Martin R. A new rating scale for the staging of dementia. *Br J Psychiatry* 1982; 140: 566-572.

Hwang J, Yang C, Tsai S, et al. (1998). Hoarding behavior in dementia. *Amer J Geriatr Psychiatry*, 6, 285-289.

Hwang J, Yang C, Tsai, S, Liu, K. Behavioral disturbances in psychiatric inpatients with dementia of the Alzheimer's type in Taiwan. *Int J Geriatr Psychiatry*, 1997; 12, 902-906.

Hwang J, Yang C, Tsai S, Liu, K. Psychotic symptoms in psychiatric inpatients with dementia of the Alzheimer and vascular type. *Chinese Medical J*, 1996; 58: 35-39.

Jann M, Chang W, Davis C, et al. Haloperidol and reduced haloperidol plasma levels in Chinese vs. non-Chinese psychiatric patients. *Psychiatry Res* 1989; 30 (1): 45-52.

Jeste D, Finkel S. Psychosis of Alzheimer's disease and related dementias: Diagnostic criteria for a distinct syndrome. *Am J Geriatr Psychiatry* 2000; 8 (1): 29-34.

Karasawa A, Kasahara H, Kato M. The role of psychiatric outpatient clinics for demented elderly patients. *Jpn J Psychiat Treat* 1988; 3: 847–853.

Kaufer D, Cummings J, Ketchel P, Smith D, et al. Validation of the NPI-Q a Brief Clinical Form of the Neuropsychiatric Inventory. *J Neuropsychiatry Clin Neurosci* 2000; 12 (2): 233-239.

Levy M, Cummings J, Fairbanks L, et al. Longitudinal assessment of symptoms of depression, agitation, and psychosis in 181 patients with Alzheimer's disease. *Am J Psychiatry* 1996; 153:1438-1443.

Liu, C, Liu, H. Noncognitive symptoms of Alzheimer's disease. *Research in Applied Psychology* 2000; 7: 89-104 (in Chinese).

Liu C, Fuh J. Behavioral disturbances in Alzheimer's disease. 1999 Annual Meeting of Taiwanese Society of Psychiatry, KaoHsiung.

Liu C, Fuh J, Teng, E, et al. Depressive Disorders in Chinese Patients with Alzheimer's Disease. *Acta Psychiatrica Scandinavica* 1999;100:451-455.

Lovato L, Hill K, Hertert S, et al. Recruitment for controlled clinical trials: literature summary and annotated bibliography. *Controlled Clinical Trials* 1997;18:328-357.

Madhusoodanan S. Antipsychotic treatment of behavioral and psychological symptoms in dementia in geropsychiatric patients. *Am J Geriatr Psychiatry* 2001; 9(3): 283-288.

Mangone C, Bueno A, Allegri R, Arizaga R, Nitri R, et al. Behavioral and Psychological Symptoms of Dementia in Latin America. *Int. Psychogeriatrics* 2000;12 (Suppl 1): 415-418.

Mangone C. Cross-cultural perspectives: Argentina. *Int Psychogeriatr* 1996; 8 (Suppl 3): 473–478.

Mangone C, Sanguinetti R, Baumann P, et al. Implications of feelings of burden on caregiver perception of the patient's functional status. *Dementia* 1993;4:287–293.

Mangone C. Cross-cultural perspectives: Argentina. *Int Psychogeriatr* 1996; 8 (Suppl 3): 473–478. *Med Sci* 1989; 44: M77–M84.

Manly J. Reading level attenuates differences in neuropsychological test performance between African Americans and White elders. *J Int Neuropsychol Soc* 2002; 8(3):341-8.

Manly J, Jacobs D, Touradji, P, et al. Are ethnic group differences in neuropsychological test performance explained by reading level? A preliminary analysis. *J Int Neuropsych Soc* 2000;6:245.

Manly J, Jacobs D, Mayeux R. Alzheimer disease among different ethnic and racial groups in : Alzheimer Disease. Ed: RD Terry, R Katzman, KL Bick, SS Sisodia. 2nd Ed. Lippincott Williams & Wilkins; Philadelphia, PA 1999: 117-132.

Mintzer J, Nietert P, Costa K, Waid L. Cross-cultural perspectives: agitation in demented patients in the United States. *Int Psychogeriatr* 1996; (Suppl 3): 487–490.

Moody L, Gregory S, Bocanegra T, Vasey F. Factors influencing post-menopausal African-American women participation in a clinical trial. *J Amer Acad Nurse Pract* 1995; 7:483-488.

Morse E, Simon P, Besch C, Walker J. Issues of recruitment, retention, and compliance in community-based clinical trials with traditionally underserved populations. *App Nurs Res* 1995; 8: 8-14.

Mouton C, Harris S, Rovi S, et al. Barriers to black women's participation in cancer clinical trials. *J Nat Med Assoc* 1997; 89: 721-727.

Olin J, Katz I, Alexopoulos G, et al. Provisional diagnostic criteria for depression of Alzheimer disease. *Am J Geriatr Psychiatr* 2002;10 (2):125-128.

Olin J, Katz I, Meyers B. et al. Provisional diagnostic criteria for depression of Alzheimer disease: Rationale and background. *Am J Geriatr Psychiatr* 2002; 10(2):129-141.

Patterson M, Schnell A, Martin R, et al. Assessment of behavioral and affective symptoms in Alzheimer's disease. *J Geriatr Psychiatr Neurol* 1990; 3: 21–30.

Paulsen J, Salmon D, Thal L et al. Incidence of and risk factors for hallucinations and delusions in patients with Alzheimer's disease. *Neurology* 2000; 54(10): 1965-71.

Pollero A, Gimenez M, Taragano F, and Allegri R. Neuropsychiatric disorders in Alzheimer's disease in Argentina. *Vertex* (in press).

Reisberg B, Franssen E, Salan S, et al. Stage-specific incidence of potentially remedial behavioral symptoms in aging and Alzheimer's disease. A study of 120 patients using the BEHAVE-AD. *Bull Clin Neurosci* 1989; 54: 95–112.

Reisberg B, Borenstein J, Salob S, Ferris S. Behavioral symptoms in Alzheimer's disease: Phenomenology and treatment. *J Clin Psychiatr* 1987; 48 (Suppl): 9–15.

Reisberg B, Franssen E, Salan S, et al. Stage-specific incidence of potentially remedial behavioral symptoms in aging and Alzheimer's disease. A study of 120 patients using the BEHAVE-AD. *Bull Clin Neurosci* 1989; 54: 95–112.

Sano M. Clinical Outcome Measures and Ethnicity in AD. GRACE Conference (Genetics, Response, and Cognitive Enhancers: Implications for Alzheimer's disease, Bethesda, Maryland, December 2-3, 2000.

Shaji K, Smitha, P Lal K, Prince M. Caregivers of patients with Alzheimer's disease: a qualitative study from the Indian 10/66 dementia research network *Int J Geriatr Psychiatr* 2003; 18 (1):1-6.

Shaji K, Arun, P Lal K, Prince M. Revealing a hidden problem: An evaluation of a community dementia case-finding program from the Indian 10/66 Dementia Research Network. *Int J of Geriatr Psychiatr* 2002. 17, 2: 222-225.

Statistical yearbook of Turkey (2001). State Institute of Statistics, Prime Ministry, Ankara Turkey.

Sinclair S, Hayes-Reams P, Myers H, Allen W, Hawes-Dawson J, Kington R. Recruiting African Americans for health studies: Lessons from the Drew-RAND Center on Health and Aging. *J Mental Health Aging* 2000; 6:39-51.

Stoy D, Curtis C, Dameworth K, et al. The successful recruitment of elderly black subjects in a clinical trial: the CRISP experience. *Cholesterol Reduction in Seniors Program. J Nat Med Assoc* 1995; 87:280-287.

Tang M, Stern Y, Marder K, et al. The APOE-e4 allele and the risk of Alzheimer's disease among African Americans, whites, and Hispanics. *J Amer Med Assoc* 1998; 279:751-755.

Taragano F, Mangone C, Comesana Diaz E. Prevalence of neuropsychiatric disorders in nursing homes. *Rev Asoc Argent Establecimientos Geriátricos* 1995; 4(6): 55-58.

Tsai S, Hwang, J, Yang, C & Liu K. Delusional jealousy in dementia. *J Clin Psychiatr*, 1997; 58: 492-494.

Tsai S, Hwang J, Yang C, & Liu K. Physical aggression and associated factors in probable Alzheimer's disease. *Alzheimer's Disease and Associated Disorders*. 1996;10: 82-85.

Tsai S, Hwang J, Yang C, et al. Inappropriate sexual behaviors in dementia. *Alzheimer Disease and Associated Disorders*, 1996;13, 60-62.

Tsai S, Hwang J, Yang C, Liu K. Physical aggression and associated factors in probable Alzheimer disease. *Alzheimer Dis Assoc Disord* 1996;10: 82–85.

Tsai S, Hwang J, Yang C, & Liu K. 1996. Physical aggression and associated factors in probable Alzheimer disease. *Alzheimer Dis Assoc Dis*, 10, 82-85.

US Census Bureau. The 65 Years and Over Population: 2000. US Department of Commerce, Bureau of the Census. October, 2001.

US Bureau of the Census. Statistical Brief: Sixty-five plus in the United States. US Department of Commerce, Bureau of the Census. Issued May, 1995.

Valle R. Culture-fair behavioral symptom differential assessment and intervention in dementing illness. *Alzheimer Dis Assoc Disord* 1994; 8 (Suppl 3): 21–45.

Walker S, Borson S, Katon W, et al. Differential clinical characteristics of older black and white nursing home residents. *Am J Geriatr Psychiatr* 1995; 3(3): 229-238.

World Development Indicators Database, World Bank, April 2002.

EDUCATIONAL TRAINING INTERVENTIONS IN BPSD

Abramovici I, Ashkenazi N, Bretholz I, et al. Physical activity in elderly patients with mental disorders: The Israeli experience. In: *Healthy Aging. Fourth International Congress, Physical Activity, Aging and Sports, Heidelberg, 1996.*

Neville C, Byrne G. Literature Review: Behaviour rating scales for older people with dementia: Which is the best for use by nurses? *Australasian J Ageing* 2001; 20:166-172.

Tropper M. Immigration – Seen by a psychiatrist. *Time and We* 1996; 3: 105–119.

Tropper M. The uprooting syndrome among immigrants as a psychopathological issues (Hebrew). *Proceedings of the 3rd National Congress of the Israel Psychiatric Society, Akko, 1979.*

Tropper M. Changing and modifying behaviour approaches in geriatric psychiatry. *Proceedings of the World Congress on Behaviour Therapy, Jerusalem, 1980.*

Tropper M. Migrational stress and coping: A real life analysis. In: *Aging in the eighties and beyond.*

Bergener M, Lehr V, Land E, Schmitz-Scherzer R (eds). Springer: New York, 1983.

Tropper M. Paranoid disorders along the clinical course of dementia regarded as multi-stage processes. *Proceedings of the World Psychiatric Association Regional Symposium – Psychiatry and its related disciplines, Copenhagen, 1986.*

Tropper M. History of geriatric psychiatry in Israel. *Israel J Psychiatr* 1997; 2: 94–97.

Tropper M, Barak C. Psychiatry and geriatrics The 10 years experience of a psychiatrist and geriatrician in co-assessment, co-treatment and co-management of elderly patients. *Proceedings of the World Psychiatric Association Regional Symposium – Psychiatry and its related disciplines, Copenhagen, 1986.*

Tropper M, Wagner J. Family therapy for Alzheimer's disease patients: Geropsychiatry and geropsychology in overcoming the stress resulting from having demented relatives at home or in an institution. *Proceedings of the International Congress on Family Therapy – The patterns which connect, Prague, 1987.*

The 10/66 Dementia Research Group. 2002b. *Dementia Diagnosis in Developing Countries.* unpublished work.