Chapter 4
Mental disorders among the elderly population in Israel

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In Israel, as in other countries, the proportion of elderly persons in the population is growing. According to estimates of the Central Bureau of Statistics, the proportion of the population aged 65 and over will rise from 10% in 2005 to 12.3% in 2025 (1). This increase will be accompanied by a sharp rise in the number of those aged 65 and older with mental disorders. This expected increase has been labeled as an emergent crisis (2) requiring proper attention. Although no specific data are available about the costs of mental illness in later life, it is clear that this is becoming a serious public health concern due to the effects on the individual, family and society. Societal effects include an increasing load on the healthcare and social services systems, accompanied by increasing economic costs. Other effects include disability, poorer health outcomes and mortality risk. Finally, psychological effects include stigma, isolation, decreased quality of life and psychological dysfunction such as diminished self-esteem.

Israel's mental health system is not yet prepared to face these prospects. Despite the fact that the percentage of elderly persons who are hospitalized is 16%, only 10% of all hospital units are defined as psychogeriatric units (3). Moreover, only four of 114 community-based mental health clinics in Israel are totally dedicated to the psychogeriatric population (4). Approximately another 25 of the community-based mental health clinics have specialized memory clinics, but most of them work on a partial schedule (5).

Israel is also lagging behind in the training of professional caregivers. While it is estimated that one professional is needed for every 800 to 1,000 persons aged 65 and over (6), in Israel there are only about 110 registered psychogeriatricians, reflecting a ratio of one professional for every 6,000 persons aged 65 and over (3). Moreover, although Israel is in the process of reforming its mental health system (7), limited attention is being given to the elderly population, with its special characteristics and needs.

This chapter presents an overview of the epidemiologic research being conducted on the most prevalent mental health disorders among the Israeli elderly population – including depression, anxiety, dementia and late schizophrenia. Recommendations for future research and action are also presented.

• Depression

According to the *Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition Revised (DSM-iv-R*) (8), the criteria for major depression include five of the following symptoms present for a period of two weeks – depressed mood, loss of pleasure in most activities, weight loss or gain, insomnia or hypersomnia, psychomotor agitation, fatigue, feelings of worthlessness, guilt, impaired concentration, and suicidal ideation. Symptoms of minor depression include depressed mood during most days for a period of two years and at least two of the following symptoms: poor appetite or overeating, insomnia or hypersomnia, low energy or fatigue, low self-esteem, poor concentration and feelings of hopelessness.

Depression is the most common late-life mood disorder, and although it is similar in both older and younger populations among the elderly it is often hidden in somatic symptoms. Also, depression is characterized by its comorbidity with other medical illnesses (9–10).

Overall, studies in other countries reported that the prevalence of major depression in persons aged 65 and over ranges between .9% and 9.4% in the community-dwelling elderly; between 14% and 42% among the institutionalized elderly; and between 1% and 16% among the elderly

living in private households or in institutions (11). As noted, those prevalence studies show great variations, due mainly to the use of varied diagnostic criteria and research methods.

Although there is limited local epidemiological research purported to assess the prevalence of late-life depression, some studies have examined the prevalence rates in specific populations and their risk factors for depression. Results of these studies are summarized below together with an overview of the depression assessment instruments validated in Hebrew.

Depression and depressive symptoms in selected populations

In a study assessing the rate and correlates of depressive symptoms in a sample of 1200 community-dwelling oldest-old (aged 75–94) Jewish residents, Ruskin *et al.* (12) found an estimated 43% rate of depressive symptoms. A lower prevalence of depressive symptoms, 16.8%, was found in a prospective study examining the association between falls and depression among 283 persons aged 60 and over in the city of Beersheba (13). Finally, Geulayov *et al.* (14), in a review article on depression in primary care, summarized prevalence rates cited by several studies that included patients aged 18 to 75. However, no specific rates for the population samples aged 60 and over were given in those studies.

Most research on the topic of depression in the elderly has focused on unique populations, such as immigrants, the Arab-Israeli sector, Holocaust survivors and kibbutz members.

With the high rate of immigration to Israel, particularly in recent decades, research attention focused on the elderly immigrant population has grown accordingly. In a clinical study using an abbreviated version of the Composite International Diagnostic Interview (CIDI-S) (15), Zilber *et al.* examined the prevalence rates of depression among a group of 116 elderly subjects from the former Soviet Union (FSU), 86 of them aged 65 or younger and 30 aged over 65 (16). Their findings showed a higher prevalence rate of major depression in the older as compared to the younger group, 4.8% and 2.0%, respectively. In contrast, rates of dysthymia were closer, 3.7% and 2.9% for the younger and older participants, respectively. The authors also reported that before immigration the incidence of depression was lower in the elderly group, while the reverse was observed in the younger group. These findings suggest that immigration leads to an increase in the incidence of depressive disorders, especially among elderly persons.

Arab Israelis are a significant minority group. High rates of depressive symptoms, based on *DSM-iv* criteria, were found in a population-based study of elderly Arabs from Wadi Ara who were diagnosed with dementia of both Alzheimer's (AD) type (n = 168) and vascular type (n = 49) (17). Prevalence rates of depressive symptoms were higher among the latter than among those with AD, 85% and 57% respectively.

Although not directly examining depression, Shemesh *et al.* reported high scores of emotional distress among 824 Arabs aged 60 and above residing in the community (18). Prevalence rates, obtained after establishing suitable cutting points, were especially high for Muslim Arabs (43.4%), followed by Christian Arabs (37%) and Druze (17%). The same study showed a prevalence rate of 21.4% among the 4,231 Jews surveyed.

Holocaust survivors represent another unique population in Israeli society. Several studies have examined depression rates among them, but their results were inconsistent. In a study assessing relationships among hopelessness, depression and suicidality among 464 elderly community dwellers attending five senior-citizen centers near the city of Haifa, Ron reported that Holocaust survivors – who comprised 45% of the study sample – expressed lower levels of depression on the Beck Depression Inventory (19) as compared to those without such an experience (mean scores 1.7 and 2.1 respectively) (19). Those findings were a reversal of the results obtained in a previous study by the same author (20) conducted among a mixed sample of 227 elderly persons residing in the community and 91 in nursing homes, also using the Beck Depression Inventory. In this study, elderly Holocaust survivors reported higher levels of depression scores than elderly

people residing in the community (2.7 and 1.3 respectively). Similarly, a study conducted in a long-stay psychiatric setting using the Structured Clinical Interview (SCID) found that 22 of 44 patients who were Holocaust survivors had a diagnosis of affective disorder, compared to five of 30 patients in the comparison group (21). The discrepancy between the studies might stem from methodological differences as well as from different coping mechanisms used by the Holocaust survivors.

Finally, Landau and Litwin (22) compared psychological and somatic symptoms associated with depression – measured by the Zung Self-rating Depression Scale – in a community-based sample of 91 Holocaust survivors and 103 elderly persons aged 75 and above who did not experience the Holocaust. Although they found no statistically significant differences in depression rates between the two groups, those who had experienced the Holocaust reported slightly higher rates of depressive symptoms.

Lastly, elderly persons residing in kibbutzim have also been the focus of research in this area. Blumstein *et al.* (23) compared the depression levels of elderly persons residing in kibbutzim with a suitable national sample. Using the Center for Epidemiological Studies Depression Scale (CES-D), lower depression scores were found among elderly female kibbutz members as compared to elderly women living in other communities.

In sum, the study of depression in special populations of elderly persons in Israel has attracted much research. However, most studies have concentrated on depression symptoms and not on depressive disorders.

Factors associated with depression in the elderly population

Several studies have examined factors associated with depression and depressive symptoms in the elderly population. Among the main factors reported were female gender; widowhood (19); vascular dementia and Alzheimer's disease (17, 24); anxiety (25); poor self-rated health; poor cognitive status; impaired Activities of Daily Living (ADL); and frequent visits to a physician (13). In a recent review on suicide in the elderly, mood disorders (and especially bipolar disorder) were reported to be one of the main mental disorders associated with suicide in the elderly population in studies in Israel and abroad (26). In Israel, a retrospective, matched, case-controlled evaluation over a 10-year period of elderly bipolar patients showed a greater index of suicide among persons with mood disorder than among those without (27).

Assessment instruments

The following are the most common instruments used for the assessment of depression in the elderly population; they are available in Hebrew and have been validated locally.

The Hamilton Depression Scale (HDS or HAMD) (28) measures the severity of depressive symptoms in individuals, often in people who have already been diagnosed as having a depressive disorder. It is sometimes known as the Hamilton Rating Scale for Depression (HRSD) or the Hamilton Depression Rating Scale (HDRS). Depending on the version used, there are either 17 or 21 items for which an interviewer provides ratings. These include overall depression; guilt; suicide; insomnia; problems related to work; psychomotor retardation; agitation; anxiety; gastrointestinal and other physical symptoms; loss of libido; hypochondriasis; loss of insight; and loss of weight.

The HDS has been widely used in local studies. It was validated by Kertzman *et al*. (29) in a study of elderly patients, including 50 with primary degenerative dementia and 50 with vascular dementia. Study findings showed the Hebrew version of the HDS to have good criterion validity in the evaluation of depression in patients with dementia.

The Geriatric Depression Scale (GDS) (30), which originally included 30 items but whose shorter form with 15 items (GDS-S) was developed later and shown to have adequate validity in many

languages (31), was specially developed for the assessment of depression in geriatric populations.

The GDS-S has been widely used in local studies (13, 32). Its Hebrew version was validated by Zalsman *et al*. in a study including 27 inpatients (*M* age = 73.3 years) with a diagnosis of major depression, according to the *DSM-iv* criteria and 21 healthy volunteers (*M* age = 70.3 years) (33). The Hebrew version of the GDS-S has proven to be a valid and reliable instrument for the detection of depression among the geriatric population. It showed high correlation scores with the HAMD (Pearson's correlation = .79, $p < .005$), as well as high sensitivity for differentiating even mild depression. High *Kappa* values were reported for inter-rater and test-retest reliability (*Kappa* = 1.0 and .88, respectively).

The Beck Depression Inventory (BDI) is the most commonly used measure to assess depression (34). It consists of 21 items describing various depressive manifestations, such as sadness, loss of pleasure and pessimism. Total scores range between 0 and 63, with higher scores indicating more severe depression. Although no specific study has examined the validity and reliability of the Hebrew version, the BDI has been used in several studies in the local elderly population and has shown good to excellent internal reliability-consistency, Cronbach's *alpha* ranging from .82 to .88 (19, 20).

The Zung Self-Rating Depression Scale consists of 22 statements that describe the way people sometimes feel (35). An index score is calculated by dividing the total score by 40 and multiplying it by 100. A score of ≥ 70 or greater is considered to indicate depression (36). This screening instrument was translated into Hebrew and showed good internal reliability-consistency in a study with elderly persons, Cronbach's *alpha* = .87 (22).

The Short Zung Interview-Assisted Depression Rating Scale is a modified version including 10 questions on the frequency of symptoms which are rated on a Likert-type scale ranging from 1 = never to 4 = always. Translated into Hebrew and subsequently validated (25), it has shown excellent sensitivity, 71.1%, and specificity, 88.3%, as well as positive and negative predictive value (90.1%) in studies assessing depression in the Israeli elderly (37).

The Center for Epidemiologic Studies – Depression Scale (CES-D) is a 20-item scale designed to measure depressive symptoms experienced in the past week (38). Responses range from 0 to 3 – and the total score, ranging from 0 to 60 – is calculated by adding the scores of all items (after reversing four of them). A score of 16 or greater has been suggested as the cut-off point indicative of probable clinical depression. The CES-D has been translated into Hebrew and has shown excellent internal reliability, Cronbach's *alpha* = .88, in several epidemiological studies (23, 39, 40).

• **Anxiety disorders**

These disorders are characterized by anxious over-concern and include several types, among them generalized anxiety disorder (GAD), panic disorders and obsessive-compulsive disorder (OCD). They are frequently associated with somatic complaints (41) as well as with the following array of symptoms: overwhelming feelings of panic and fear; uncontrollable obsessive thoughts; painful, intrusive memories; recurring nightmares; nausea; sweating; and muscle tension (42) (see chapter 12).

Anxiety disorders may be the most common mental disorders in elderly persons; they can affect twice as many older adults than does depression (43). However, little research has been conducted worldwide and in Israel to assess the prevalence, correlates and treatment of anxiety disorders among the elderly (44).

There are few local studies assessing anxiety in the elderly population. They were aimed at examining the association between anxiety, depression and cognitive decline. Trying to elucidate

this relationship, Sinoff *et al.* (45) developed one of the few screening tests for the assessment of anxiety in the elderly – the Short Anxiety Screening Test (SAST). The SAST was developed based on *DSM-iv* criteria (8) and includes, among others, modifications of commonly recurring questions found in other instruments and items exploring somatic symptoms. The instrument includes 10 questions scored from 1 to 4; a total score is calculated by the sum of the scores. A score of 24 or higher is considered as the cut-off point for the diagnosis of anxiety. The SAST was validated in a study including 150 geriatric inpatients and outpatients, and was found to be a valid screening test for detecting anxiety among the elderly (45). The internal consistency of the SAST was Cronbach's *alpha* = .70, and its inter-rater reliability, .80. Additionally, it showed a sensitivity of 75%, a specificity of 79%, and a positive predictive value of 71%. SAST was later used in studies to assess the associations between depression, anxiety, and cognitive impairment (25, 37).

• **Dementia and Alzheimer's disease**

Dementia is the progressive decline in cognitive functioning due to damage or disease of the brain beyond what might be expected from normal aging. The functions particularly affected are memory, attention, language and problem-solving. Alzheimer's disease (AD) is the most common cause for dementia, followed by vascular dementia (46).

The most important age-related disorder, dementia has attracted considerable amount of research worldwide and in Israel. The results of the local studies examining dementia in general and AD in particular are summarized below, together with an overview of the dementia assessment instruments validated in Hebrew and studies assessing the consequences of dementia.

Studies on the prevalence of dementia

The first comprehensive epidemiological study to assess the prevalence of dementia among Jewish-Israeli elderly was conducted in 2002 by Wertman *et al.* on a random sample of 1624 community dwellers aged 65 and over and residing in Jerusalem (47). Following an initial screening for suspected dementia and a further in-depth clinical examination using a clinical protocol developed by the Neuro-Psychogeriatrics Department of Jerusalem's Herzog Hospital in accordance to the diagnostic criteria of *DSM-iii-R* and *DSM-iv*, a fifth of the participants (19.2%) were diagnosed with different stages of dementia. When these rates were applied to data on the total elderly community-dwelling population living in Israel by the end of 2002, the numbers reached some 98,000 individuals.

The rate found was higher than those reported by Kahana *et al.* in their study conducted with a population of 1,501 elderly persons over the age of 75 in the coastal city of Ashkelon (48).The total prevalence of dementia in this study was 11%, with rates increasing from 5.9% among those aged 76 up to 26.9% among those aged 90 and over. The difference between the two studies can be explained by the different assessment methods used. In Jerusalem, it was based on a physician examination, while in Ashkelon, on trained medical field workers (nurses or social workers).

As might be expected, higher prevalence rates were found among residents of long-term care geriatric institutions. In a cross-sectional survey of a representative sample of 11 wards in 34 long-term care institutions providing care for the elderly in Jerusalem, 49.9% of the sample was diagnosed with dementia (49).

While these studies referred to all dementias, others have examined specific types of dementia in specific cultural groups. Bowirrat *et al.* reported unusually high prevalence rates (20.5%) of Alzheimer's disease in an epidemiological study of 821 Arab Israelis aged 60 and over residing in Wadi Ara (50). A prevalence rate of 6.0% of vascular dementia was found in the same population (51). These findings are explained by the unique characteristics of this group, such as

rural living conditions, environmental hardships, cigarette smoking, and by their unique human genome data (52).

Assessment instruments

A number of instruments are available for the screening of dementia (for a thorough recent review of this topic, see ref. 53). They vary in length, mode of administration and psychometric characteristics (for a review, see ref. 54; specific data are provided below). However, only few of those instruments in their Hebrew version have been appropriately tested and validated.

The Mini-Mental State Examination (MMSE) (55) appears to be the most widely used test for the screening and diagnosis of dementia. It is an 11-item instrument assessing cognitive functioning, with scores ranging from 0 (total cognitive deterioration) to 30 (normal cognitive functioning). The Hebrew version of the Mini Mental State Examination was administered to 36 and 19 elderly persons with and without dementia, respectively. Test-retest reliability scores were calculated as exact agreement rates and ranged from good to excellent for all the items. Strong convergent validity, as measured by the correlation between the MMSE and the CAMCOG (see below, r = .94) was found. Good predictive value was observed, as over three-quarters of the participants were correctly classified as demented or non-demented (56, 57).

The Telephone Interview for Cognitive Status-Modified (TICS-m) is a short instrument, modeled on the Mini-Mental State Examination with the aim of assessing cognitive status over the telephone. The mental functions assessed include orientation, attention, memory, repetition, comprehension and conceptual knowledge (58). Its validated Hebrew version (59) has shown high internal reliability-consistency, Cronbach's *alpha* = .98, as well as excellent convergent validity and sensitivity.

The CAMCOG is a relatively brief neuropsychological battery which forms part of the Cambridge Examination for Mental Disorders of the Elderly (CAMDEX) (60) and assesses a wide range of cognitive functions. The CAMCOG ranges from 0 to 107, with scores lower than 79/80 indicating cognitive impairment. The CAMCOG is the second most popular cognitive test used by Israeli physicians. It was validated by Heinik *et al*. (61) and has shown excellent inter-rater agreement scores, as well as strong convergent validity and predictive characteristics.

Other well-known instruments in use locally – but for which no reliability and validity data have been published – include the Alzheimer's Disease Assessment Scale (cognitive subscale) (62), the Modified Mini-Mental State Examination (3MS) (48, 50), the Clock Drawing Test (63) and the Brookdale Cognitive Screening Test (49, 52).

The recent emphasis on the need for early diagnosis of AD highlights the pressing need to develop precise instruments that can be easily and objectively administered and will minimize learning effects. Thus, Israeli researchers have recently been concentrating on the development and validation of computerized tests for the assessment of dementia among the elderly (64). Aharonson *et al.* reported the validity of a computerized method for the diagnosis of mild cognitive impairment by assessing the recall of a pattern and digit symbol substitution (65). Finally, the Mindstreams Mild Impairment Battery is an interactive cognitive test that assesses a wide variety of cognitive domains, including memory; executive function; visual spatial skills; verbal fluency; attention; information processing; and motor skills (66). Results of a Receiving Operating Curve analysis measuring the ability of this instrument to discriminate mild cognitive impairment from cognitively healthy elderly persons showed that the parameters estimated discriminated significantly with an AUC ranging from .70 to .86.

Impact of dementia

The main impact of dementia have also been examined by local researchers. First, the direct and indirect monetary costs associated with caring for persons with AD were examined in community-dwelling and institutionalized patients (67, 68). Seventy-one AD patients who lived in the community, 50 institutionalized AD patients and 50 healthy elderly subjects were interviewed.

The interviews covered information about the number of caregivers' hours invested in caring for the patient and amount of expenditures, such as in-house paid help and payment for day care. The annual social cost of caring for a person with AD in Israel was approximately US $17,000, whether the patient lived at home or in a nursing home. The cost components differed in the two groups. For community-dwelling patients, 60% of the cost represented an imputed value of unpaid indirect care compared with 12% for institutionalized patients. Also, in both residences, the private cost was significantly higher than the public cost, i.e., more than 75% of the services provided to patients were paid out-of-pocket. Cost of institutionalization was the major component of the social cost. Additionally, the costs of the disease increased with functional and cognitive deterioration and were especially high for the management of the associated behavioral and psychological symptoms.

In addition, the stigmatic views of the lay public and professionals towards persons with Alzheimer's disease were examined (69. 70). These studies showed that despite anecdotal beliefs regarding the stigma associated with Alzheimer's disease, professionals as well as the lay public reported more positive (such as concern – reported by 60% of the lay public, and desire to help – reported by 72%) than negative emotional reactions (such as irritation – reported by 4% of the lay public, and anger – reported by 10%).

However, one of the hardest consequences of the disease – the burden on the caregivers of the persons with dementia (71, 72) – has attracted limited research attention in Israel. Lowenstein, in a study examining the effects of demographic, ethnic, personal and familial resources on the well-being of children caring for parents with Alzheimer's disease, found that ethnicity and intergenerational relationships were the main predictors of the caregivers' mental health (73). The need remains to expand this line of research locally.

• **Schizophrenia in late life**

Although schizophrenia is typical of young adults, it is clear today that it can also appear in or extend into late life. Increased research attention has recently been devoted to schizophrenia in elderly persons, with a special focus on similarities and differences between age groups (74). Diagnostic criteria for schizophrenia in late life are similar to those of early life, and symptoms include delusions; hallucinations; disorganized speech; affective flattening; alogia; and avolition. Although no epidemiological data about the prevalence of late-life schizophrenia are available, a recent Israeli review estimated rates ranging from .1% to 4% (75).

The results of Israeli studies in the area of late-life schizophrenia confirm those of studies worldwide that patients with late-life and very-late-life schizophrenia present stable cognitive and everyday functioning, as compared with younger patients (76); a relatively low base rate of suicide (77); and lower levels of self-stigma than younger populations (78).

In terms of screening instruments, Israeli researchers rely on the Positive and Negative Syndrome Scale (PANSS) (79). This is an interviewer-administered scale scored on the basis of a clinical interview lasting 30 to 45 minutes. It consists of three subscales: positive syndrome scale, negative syndrome scale and general psychopathology scale. The reliability and validity of the PANSS in Hebrew have been established among both adult and elderly schizophrenia patients (80).

• **From epidemiology to mental health action**

In view of the anticipated demographic changes worldwide, the number of elderly persons with mental disorders will continue to increase, posing a considerable burden to individuals, professionals and society at large. Importantly, Israel is in the process of undergoing a thorough reform in the delivery of psychiatric care aimed at addressing this problem (7).

Given the relative high prevalence rates of elderly persons with mental disorders, there is an urgent need to expand the research base, particularly in the following areas:

(a) Epidemiological studies assessing the incidence and prevalence of mental disorders among the elderly population are needed, with special attention paid to unique groups, such as Arab Israelis and new immigrants;

(b) Unique correlates of mental illness in the elderly should be identified, such as comorbidity, populations at risk (e.g., elderly persons living alone);

(c) Data obtained through these studies should be geared to provide information and guidelines with regard to the clear definition of policy and priorities that are specifically centered on the needs and unique characteristics of elderly persons with mental disorders;

(d) Knowledge and attitudes regarding discrimination towards elderly persons with mental disorders should be assessed, particularly in relation to the following questions: Are these persons a target for double stigma? Do discriminatory behaviors prevent help seeking in this population? Do professionals' attitudes affect the care that elderly persons with mental disorders receive?

(e) Studies on issues of clinical importance and related to the practice with elderly persons with mental disorders are needed. For example, professionals' knowledge and training regarding the care of elderly persons with mental disorders should be examined and the effectiveness of multi-professional care evaluated;

(f) Evaluation should be conducted of educational programs aimed at providing knowledge about mental disorders among the elderly, specifically those geared to different population groups, such as the lay public, elderly persons with mental disorders and their family members, professionals; and

(g) Assessment of the efficacy of intervention programs for elderly persons with mental disorders should be expanded.

In sum, the field of mental disorders in Israel's elderly population is still in its developing stages. Services geared to the unique needs of this population should be developed. These include mental health services for the elderly in non-hospital-based outpatient settings, nursing homes and community centers for the elderly. Training programs for professionals in the area of psychogeriatrics should be developed. Special attention must be paid to an interdisciplinary mental health care approach for the elderly with mental disorders that include the disciplines of medicine, psychiatry, psychology, psychiatric nursing and clinical social work.

Although old age is not itself a risk factor for mental disorders, increasing numbers of elderly persons will be developing a significant mental health disorder. Israeli society should be prepared to deal with these developments adequately.

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