Focus

Depression in Primary Care in Israel

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Abstract

Depression is a leading cause of morbidity, disability and health care utilization. It is commonly encountered in primary care settings yet is often missed or suboptimally managed. We summarize studies conducted in Israel on the prevalence of depression in primary care settings, its correlates, and predictors of treatment and outcome, and discuss their implications for clinical practice and public health policy. An electronic search was conducted using the MEDLINE and PsychINFO databases. The inclusion criteria were original studies that assessed aspects of depression in a population aged 18 or older, were conducted in primary care settings in Israel, and had sufficient detailed description of depression-related measures, study sample and outcome measures. Twelve articles reporting results from seven studies met these criteria. The prevalence of current depression in primary care varied considerably across studies: 1.6–5.9% for major depression, 1.1–5.4% for minor depression, 14.3–24% for depressive symptoms. Depression was consistently related to female gender and fewer years of education, and was associated with disability, decreased quality of life, and increased health-related expenditure. Many cases of depression were undiagnosed and most patients had persistent depression or achieved only partial remission. Depression represents a serious challenge for the primary health care system in Israel. Greater efforts should be focused on screening and treating depression in primary care. However, the studies reviewed here used different methodologies and assessed different aspects of depression and, therefore, should be generalized cautiously. Systematic research on the prevalence, correlates and management of depression in primary care, with emphasis on collaborative care models, is strongly needed to inform research, clinicians and health care policy makers.

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Depression affects approximately 121 million people worldwide. By 2020 it is projected to become the leading cause of disability and the second leading contributor to the global burden of disease [1]. Depression has a considerable impact on physical, mental and social well-being. It places a significant burden on society [2]. Two-thirds of all suicides are related to depression, and approximately 15% of individuals diagnosed with major depression will commit suicide [3]. Patients with depression also have increased medical morbidity and mortality [4]. Data from the United States show that workers suffering from depression experience an estimated average of 5.6 lost productive hours per week, and that this lost productivity translates into $44 billion in annual wages alone, an excess of $31 billion per year, as compared to peers without depression [5].

Depression often accompanies medical conditions seen in primary care settings. Depressive complaints are common in patients with chronic pain, sleep disorders, diabetes, arthritis, stroke and heart disease [6]. In addition, numerous medical conditions, such as malignancies and thyroid or adrenal disorders, may initially present as depression [7].

Despite the substantial burden associated with depression, and the well-established diagnostic criteria and effective treatment options [8], approximately one-third to one-half of the cases of major depression in primary care settings are undetected [9]. Denial of illness and fear of social stigma are two factors that may contribute to poor recognition [10]. Moreover, local factors such as health policy, health service organization, sociocultural factors, and health provider training and attitudes, may all play a role in the recognition and treatment of depression.

The Israeli population is highly heterogeneous in terms of its cultural makeup, beliefs, mother tongues and customs. Immigrants are known to be at higher risk for depression [11], and the plethora of origins makes diagnosing and treating depression all the more difficult. Especially challenging is the diagnosis and treatment of patients from a diversity of ethnocultural perspectives, adding to the challenge of treating the large minority of Arabs in Israel, where obvious cultural and language barriers exist.

Israeli society has been repeatedly exposed to stressful events, enduring many losses and threats [12]. Chronic stress is associated with higher rates of depression [13]. Israel also counts a large number of Holocaust survivors and children of survivors among its citizens. Evidence suggests that the prevalence of depression is higher in individuals exposed to the Holocaust atrocities [14] relative to those who were not. Moreover, Yehuda and colleagues [15] found that parental trauma exposure related to the Holocaust was associated with lifetime depressive disorder in offspring.

Under Israeli law all citizens are medically insured. Medical services are delivered primarily by four public health management organizations. Until now, mental health services were excluded from this arrangement and were delivered directly by the Ministry of Health. The Ministries of Health and Finance recently signed an agreement transferring responsibility for mental health services from the Ministry of Health to the four public health funds beginning 1 January 2007. This shift in responsibility is likely to increase the number of patients with depression that primary care physicians will be expected to diagnose and manage.

We summarize studies conducted in Israel on depression in primary care settings, its prevalence, correlates, outcome and predictors of treatment response. We also consider clinical and public health implications of research findings and suggest directions for future research.

Definitions

There are two main types of depressive disorder – major depressive disorder and dysthymic disorder. According to the Diagnostic and Statistical Manual of Mental Disorders 4th Edition (DSM-IV) [16], *major depressive disorder* is diagnosed if 5 or more symptoms [Table 1] have been present most of the day, every day for at least 2 weeks, and if at least one of the first two symptoms, i.e., depressed mood or loss of interest or pleasure, is present. Symptoms must cause clinically significant distress or impairment in social, occupational, or other important area of functioning. Depressive symptoms due to the direct physiological effect of a substance or a general medical condition or related to bereavement are classified separately in the DSM-IV. *Dysthymic disorder* is qualitatively similar to major depressive disorder, but tends to be less severe. For a diagnosis of dysthymic disorder, depressed mood must be present for at least 2 years, accompanied by at least two other symptoms [Table 1]. In clinical practice, the distinction between "severe" dysthymic disorder and "mild" major depressive disorder is more theoretical than practical [17].

In addition to these two clinical diagnoses, researchers have studied depression based on the sub-threshold diagnosis of *minor depressive disorder* and *presence of significant depressive symptoms*. Minor *depressive disorder is defined by* the DSM-IV as experiencing two to four (rather than five or more) symptoms of major depression for most of the day nearly every day [18]. Minor depression is associated with significant disability [19], elevated mortality [20] and is also a significant predictor of later onset of major depressive disorders [19]. D*epressive symptoms* were also found to be associated with indices of morbidity [21] and mortality [22], disability and decreased quality of life [23], and they may impose a significant economic burden [24]. However, these two categories do not exist as formal DSM-IV diagnoses.

In clinical settings, depressive diagnoses are typically ascertained using an unstructured clinical interview. Research studies diagnose depression using structured or semi-structured diagnostic interviews, such as the Composite International Diagnostic Interview (CIDI). Alternatively, self-report instruments such as the Center for Epidemiologic Studies Depression questionnaire (CES-D) and the Beck Depression Inventory (BDI) are used, and depression is typically endorsed if a predetermined cutoff score is met. Self-report scales also provide a measure of severity of depressive symptoms.

An electronic search was conducted using MEDLINE (1966 to March 2006) and PsychINFO (1872–March 2006) databases. Key search terms were: depression, depressive disorders, depressive symptoms, mental health, primary care, general practice, family practice, and Israel. An additional search term, "Longitudinal Investigation of Depression Outcomes" (LIDO), was subsequently used to generate additional reports, as many publications on the topic were part of the LIDO study conducted at six sites worldwide, one of which was Israel. Finally, we conducted a secondary search of the bibliographies of the papers obtained through the electronic database search.

Studies were included in the present review if they met the following criteria: original research that assessed aspects of depressive disorders or depressive symptomatology, were conducted in primary care settings in Israel, studied an adult population (18 or over), had sufficient detailed description of depression-related measures, study sample and outcome measures, and were published in English or Hebrew.

Altogether, we identified 12 reports based on 7 independent studies that met our inclusion criteria.

Prevalence

Three different approaches were used to investigate the epidemiology of depression: a) two studies [2,25] analyzed patients' medical records as documented by their treating clinician; b) three studies [2,26,27] used depression rating scales as a screening tool; and c) two studies [8,24,28-32] used structured psychiatric interviews that endorse diagnoses based on the DSM and the International Classification of Diseases (ICD).

Depressive disorders

- *Major depression*: Five studies assessed the overall prevalence of major depression in primary care [Table 2]. Prevalence of current major depressive disorder ranged from 1.6% [2] to

Table 1. Diagnostic symptoms for major depressive disorder and dysthymic disorder according to DSM-IV [16]

Major Depression	Dysthymic Disorder
1. Depressed mood	1. Poor appetite or overeating
2. Markedly diminished interest or pleasure	2. Insomnia or hypersomnia
3. Significant weight or appetite change	3. Low energy or fatigue
4. Insomnia or hypersomnia	4. Low self-esteem
5. Psychomotor agitation or retardation	5. Poor concentration or difficulty making decisions
6. Fatigue or loss of energy	6. Feelings of hopelessness
7. Feelings of worthlessness or excessive or inappropriate guilt	
8. Diminished ability to think or concentrate, or indecisiveness	
9. Recurrent thoughts of death or suicide	

Table 2. Studies assessing depression prevalence and correlates

Authors	Design	Measures	Sample	Prevalence & correlates
Froom et al., 1995 [27]	Cross-sectional	• Inventory to Diagnose Depression	N=207 Age: not available	**Prevalence (current)** 3.4% ⇒ major depression 5.4% ⇒ minor depression
Munitz et al., 2000 [25]	3 months retrospective medical file analysis	• ICD-10 criteria for depression diagnosis	N=200 files	**Prevalence (3 month)** 4% had diagnosable depression, i.e., sufficient depressive symptoms to diagnose a depressive disorder
Biderman et al., 2002 [26]	Prospective, two time-points: baseline, 1 yr	• Depressive symptoms (GDS) • Self-reported health assessment • Chronic medical problems	N=283 Age ≥ 60	**Prevalence (current)** 16.8% ⇒ Depressive symptoms **Correlates** Female gender, poor self-rated health, poor cognitive functioning, impaired ADL, and slow walking speed identified as risk factors for depression
Herrman et al., 2002 [24]*	Cross-sectional	• Depressive symptoms (CES-D)	N=3613 Age:18–75	**Prevalence (current)** 24% depressive symptoms (i.e., CES-D ≥ 16) **Correlates** Female gender, less educated, non-married, higher CES-D score
Simon et al., 2002 [28]*	Prospective, four time-points: baseline, 3, 9, 12 months	• Depressive symptoms (CES-D) • Depressive disorders module of the CIDI • Anxiety subscale of Hopkins Symptom Checklist 90 • Chronic medical conditions checklist	N=161 with major depression Age: 18–75	**Prevalence (current)** 36% of patients had persistent clinical depression at 9 months follow up; 29% achieved partial remission
Kafman et al., 2003 [2]	Correlational	• Depression screening test (DIS) • Depression Inventory (IDD)	N=551 Age:18–90	**Prevalence (current)** 1.6% ⇒ major depression 1.1% ⇒ minor depression **Correlates** • Older age • Being married or widowed vs. single
Shvartzman et al., 2005 [32]	Cross-sectional	• MINI – Mini International Neuropsychiatric Interview	N=2507 Age:21–65	**Prevalence (current)** 5.9% ⇒ major depression 1.6% ⇒ minor depression 14.3% ⇒ depressive symptoms **Correlates** • Lower rate of depression in religious people • Female gender, less than high school education, non-religious • 30% more co-morbidity of chronic illness in depressed patients • 44% more co-morbidity of chronic illness in patients with major depression

* Part of the LIDO study initiative which aimed to study various aspects of depression in primary care in a diverse cross-national sample, of which Beer Sheva, Israel is one site.

ICD-10 = International Classification of Disease 10th edn, GDS = Geriatric Depression Scale, CES-D = Center for Epidemiologic Studies Depression instrument,

CIDI = Composite International Diagnostic Interview, DIS = Diagnostic Interview Schedule, IDD = Inventory to Diagnose Depression

5.9% [32]. Munitz and co-authors [25] found that 3.3% of their multinational sample had a (lifetime) diagnosis of major depression in their medical records. However, separate data on the Israeli sub-sample were not available.

• *Dysthymic disorder*: One study [25] reported 0.9% (lifetime) prevalence of dysthymic disorder based on patients' medical record analysis. Prevalence for the Israeli sub-sample was not available.

• *Minor depression*: Prevalence of current minor depression, as reported in three studies [Table 2], varied between 1.1% [2] and 5.4% [27].

Depressive symptoms

Current prevalence of clinically significant depressive symptoms varied considerably across the three studies. Herrman et al. [24] found a 24% prevalence rate, while Biderman et al. [26] and Shvartzman et al. [32] found 16.8% and 14.3%,

respectively. A community-based study conducted in Israel [12] found that 21.5% had clinically significant depressive symptoms.

The prevalence of depressive disorders cited above is somewhat lower than rates in American and European primary care samples, i.e., 4.8–8.6% for major depression, 2.1–3.7% for dysthymia, and 2–5% for minor depression [33]

Correlates

Sociodemographic characteristics

• *Gender*: In three studies female gender was associated with clinically significant depressive symptoms [25,26,32], major depression and minor depression [32] or diagnosable depression* [25]. However, in three other studies Depression was not associated with gender when compared to depressive

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* Having sufficient depressive symptoms to diagnose a depressive disorder

Table 3. Studies assessing impact of depression on disability and economic resource

Authors	Measures	Impact
Froom et al., 1995 [27]	• Inventory to Diagnose Depression • Dartmouth COOP Functional Health Assessment Charts	• Functional impairment was most severe in patients with MDD> minor depressive disorder>no-depressive disorder
Munitz et al., 2000 [25]	• ICD-10 criteria for depression diagnosis	• The diagnosable depression* group had significantly higher health care utilization compared to patients with no evidence of depression
Herrman et al., 2002 [24]**	• Functional status (SF-12) • Health-related QoL (WHOQOL) • Use of health service in 3 months prior to assessment • Lost work days	• Inverse relationships between depressive symptom score and self-reported health, QoL, satisfaction with health. • Positive association between depressive symptom score and number of: health care visits, days in hospital, lost work days
Simon et al., 2002 [28]**	• Self-reported treatment for depression in past 3 months • Functional status (SF-12) • Missed work days in past 3 months • Resource Utilization Questionnaire in past 3 months	• Patients with more favorable depression outcomes had lower outpatient costs
Bech et al., 2003 [30]**	• Quality of Life Depression Scale (QLDS) • WHOQoL Instrument • Physical health (SF-12) • Mental health subscale of the SF-36	• Patients with moderate depression + serious medical condition had the lowest QoL compared to patients with mild depression, or moderate – severe depression
Chisholm et al., 2003 [8]**	• Functional status (SF-12) • Client Service Receipt Inventory • Self-reported days absent from work	• Clinical depression 40% more costly than subclinical depression • Clinical depression + co-morbidity 40% less costly than subclinical depression + co-morbidity • Co-morbidity increases costs regardless of depression status (clinical vs. subclinical) • Nearly all results are not statistically significant • Weak support for excess costs of work disability in clinical depression
Kafman et al., 2003 [2]	• Medical charts, and treatment for depression • No. of visits to primary care physician	• Patients with depressive disorders visited their physicians more often than non-depressed: 12.7 and 7.14, respectively (during 6 months).
Shvartzman et al., 2005 [32]	• Health service utilization extracted from computerized database	• Depressed more likely to be absent from work, use more mental health services, visit GP more often • Patients with major depression ⇒ higher utilization rate compared to non-depressed (ratio 3.7) • Patients with minor depression, depressive symptoms, no-depression ⇒ similar utilization %. Patients with depression ⇒ higher expenditure cost on all but pharmacy cost

* Diagnosable depression = sufficient depressive symptoms to diagnose a depressive disorder

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CD-10 = International Classification of Disease 10th edn, CES-D = Center for Epidemiologic Studies Depression instrument, MDD = Major Depressive Disorder, SF-12 = 12 item short form health survey, WHOQoL = World Health Organization Quality of life

symptomatology [8] or to no-depression [2], and neither was severity of depressive symptoms [30].

• *Age*: One study [2] found that the mean age of individuals with major or minor depression was significantly higher than of those with no depressive morbidity. However, other reports found no association between age and clinically significant depressive symptoms [8,24,26,30,32] or depressive disorder [8,30,32].

• *Marital status*: In two reports originating from the LIDO study [24,30], severe depressive symptoms was more likely in individuals who were not married. In another study [2], a higher rate of minor and major depression was found in married and widowed as compared to single people, yet in other reports marital status was unrelated to clinically significant depressive symptom score [26,32] or depression disorder [8,32].

• *Education*: Years of education was inversely associated with depressive symptom score [24,30,32], and depressive disorders [8,32]. However, no association between years of education and depressive symptoms score [26] or depression [2] was found in two other studies.

• *Employment*: One study [32] reported a higher proportion of depressive disorders and symptoms among the unemployed, while another study [8] found no such association.

• *Other characteristics*: Depressive morbidity was associated with being an immigrant living in Israel for more than 10 years prior to the study, and being secular [32], and with being part of a minority group [25].

Consistent with reports from other countries [32], gender, age, education, and marital status were found to be correlated, albeit inconsistently, with measures of depression in the Israeli primary care population.

Association with physical illness

One study [32] found a 30% increase in frequency of co-morbid chronic medical illness among individuals with minor depression or significant depressive symptoms, and a 44% increase in patients with major depression, compared to individuals without depression. Medical co-morbidity has been largely neglected in the studies we reviewed. This is an important omission given the abundant literature on such an association and the role of depression in course, outcome, and economic costs of medical conditions [34].

Impact of depression
Disability and Quality of Life

• *Functioning*: A higher score of depressive symptoms was associated with poor self-reported physical functioning [24] and with impaired functional status, slow walking speed, and poor cognitive functioning in elderly patients [26]. In another study [27], functional impairment was most severe in patients with major depression and least severe in individuals with no evidence of depressive morbidity. Individuals with minor depression had an intermediate level of functional impairment.

• *Self-reported health*: The severity of depressive symptoms was inversely related to self-reported assessment of physical health [30] and to satisfaction with health [24,30], and positively associated with ratings of poor health [28]. An inverse association was found between depressive symptoms score and overall quality of life [24,30].

Consistent with findings from international studies [35], depression is associated with poorer perceptions of physical health and quality of life in Israeli primary care patients.

Economic burden

Studies that evaluated the economic burden of depression focused on health services utilization, costs due to health expenditure, costs due to work disability, work loss days, and lost productivity.

• *Health resources*: The use of health services was positively associated with a higher depressive symptom score [24], and with having a diagnosis of depression [25]. Mental and general medical costs were 40% higher for patients with clinical depression compared to individuals with depressive symptoms ;however, for individuals with co-morbid medical conditions, medical costs were 40% lower for patients with clinical depression. In another study [32], depressed individuals tended to use more mental health services and visit their primary care physician more than those with minor depression, depressive symptoms or no depression.

• *Work productivity*: Depressed persons were slightly more likely to be absent from work compared to patients without depression [32]. However, in another study [8], clinical depression was only slightly more costly in terms of work disability as compared to depressive symptoms without a clinical diagnosis.

Consistent with previous research [36], our findings indicate that depressive symptoms are associated with an increased economic burden regardless of clinical diagnosis. However, a clinical diagnosis may lead to greater resource consumption [8] relative to that incurred by sub-clinical cases.

Recognition

Two studies examined the degree to which depressive disorders are detected in the primary care setting in Israel [Table 4]. Froom and colleagues [27] found that over a third of the patients identified as having major depression in the study were previously undetected. Analyzing patients' medical records, Munitz and team [25] revealed that only 22% of patients were correctly diagnosed

with depression by their physician. However, this analysis relied on documentation of depressive symptoms by the treating physician and may have inaccurately estimated the true number of undetected cases.

Treatment

Two reports originating from the LIDO study examined aspects of treatment of depression in primary care patients. One [29] found that 17% of patients received treatment for depression during a 9 month follow-up, and that psychological treatments were more commonly used than pharmacological treatment. Moreover, Only 10% of the patients received potentially effective treatment, defined as the lowest dose considered effective. In another report [24], the authors found that treatment for depression during the 3 months prior to the study was associated with more severe depressive symptoms and with greater dissatisfaction with general health. Reported barriers to treatment of depression [29] included concerns about medication costs and adverse effects, embarrassment about treatment, a belief that seeking treatment could compromise job opportunities, inconvenient treatment facilities, and discouragement by family or friends [Table 4]. However, as acknowledged by the authors, a more thorough investigation of barriers to treatment would need to explore cultural factors in greater depth, and assess the barriers to treatment among community residents who do not seek help at primary care settings [29].

There is an urgent need for research to develop and implement valid and reliable screening procedures and appropriate evidence-based interventions for depression in the Israeli primary care system

Co-morbid medical conditions

Reporting data from the LIDO sample, Bech and collaborators [30] showed that patients with moderate depression and a co-morbid serious medical condition received the lowest dose of antidepressants (no data were available on the Israeli sample). If this finding applies also to Israel, it would seem that chronic patients with co-morbid depression might be a particularly undertreated group. There is strong evidence that antidepressants are effective and acceptable for treating depression in the physically ill [37].

Clinician orientation

One study [38] found that nearly 60% of the physicians studied reported that they always or usually treated depression themselves. A further analysis showed a relationship between the clinicians' background and characteristics and their tendency to treat depressive disorders in primary care. These physicians tended to spend more time in continuing education, had a specialization in family medicine, and conducted more home visits and more medical procedures themselves

Table 4. Studies assessing detection, treatment and outcomes of depression

Authors	Detection, treatment and outcomes
Froom et al., 1995 [27]	**Detection** • 36% of patients identified with MDD in the study were undetected according to their medical records
Rabinowitz et al., 1998 [38]	**Treatment** • 58.7% of physicians reported always or usually treating depression themselves (= typically treating) • 41.3% reported sometimes or never treating depression (= not typically treating) • Physicians typically treating depression: spend more time in continuing education; specialize in family medicine; conduct more home visits, more medical procedures and treat more medical conditions themselves; have more frequent contact with social workers; are involved with family planning and in the treatment of hospitalized patients; tend to see themselves as the first contact in the medical system for patients with psychosocial problems
Munitz et al., 2000 [25]	**Detection** • In all sites, 4.2% had a diagnosis of depressive disorder in their medical record but 11.2% had diagnosable depression* (separate data on Israel are not available) • Of 11.2% with diagnosable depression, only 22% were correctly diagnosed with depression in their files
Herrman et al., 2002 [24]**	**Treatment** • Treatment for depression was more likely for those with more severe depressive symptoms (CES-D $\geq$ 20) compared to those with more mild symptoms (i.e., CES-D=16-19) • Treatment was associated with greater dissatisfaction with health but not with physical health status • Treatment was not associated with demographics or SF-12 physical component
Simon et al., 2002 [28]**	**Outcomes** • 36% of patients had persistent clinical depression at 9 months and 29% achieved partial remission • No association between baseline work loss days and 9 month depression outcomes. • No association between baseline services costs and 9 month depression outcome
Bech et al., 2003 [30]**	**Treatment** • Patients with moderate depression & serious medical condition received the lowest amount of antidepressants, compared to patients with mild depression, or moderate-severe depression **Outcomes** • Patients with moderate depression & serious medical condition had lowest outcome in depression scores during a 12 month period, compared to patients with mild depression, or moderate-severe depression
Kafman et al., 2003 [2]	**Detection** • Depression was under-documented in medical files and under-recognized
Simon et al., 2004 [29]**	**Treatment** • 17% received treatment over 9 months • 10% received potentially effective treatment over 9 months • Mental health care was more common than drug therapy • Barriers to treatment include concerns about costs (26%) and adverse effects of medications (21%), belief that treatment is embarrassing (21%), seeking treatment may compromise job opportunities (15%), long distance of treatment facilities (13%), and family or friends discourage treatment (3%)
De Almeida Fleck et al., 2005 **	**Outcomes** • 36% in complete remission at 9 months • The complete remission group compared to the not complete remission group was younger, had more formal education, was more often employed, had fewer co-morbid medical conditions, dysthemia and anxiety disorders, less intensity of depression, better quality of life and functioning, and less stressful life events as measured at baseline • Low alcohol risk at baseline $\Rightarrow$ significant predictor of complete remission • Only QLDS score was a significant predictor of complete remission at 9 months

* Diagnosable depression = sufficient depressive symptoms to diagnose a depressive disorder

** Part of the LIDO study initiative which aimed to study various aspects of depression in primary care in a diverse cross-national sample, of which Beer Sheva, Israel is one site

CES-D = Center for Epidemiologic Studies Depression instrument, MDD = Major Depressive Disorder, SF-12 = 12 item short form health survey

[Table 4]. Some of these characteristics may be modifiable through training.

Treatment for depression in primary care is likely to be influenced by a variety of other factors such as health policy, structure of health services, cultural factors, and other variables pertaining to the health provider's training and attitudes [38]. Data on such factors are scarce and more research is needed.

Remission and recovery

Three reports used data from the LIDO study to assess depression outcomes. Findings are based on 161 patients with major depression who were followed for up to 12 months, 17% of whom received treatment for depression during the follow-up period. Simon et al. [28] reported that 36% of the patients had persistent clinical depression at 9 months. Full remission of depression following treatment was achieved by a little more than a third of the sample.

In another report [31], patients achieving complete remission at follow-up tended to be younger, had more years of schooling, were more often employed at baseline, had fewer medical conditions, and were less likely to have dysthymic disorder or anxiety. They also showed that more years of education, fewer key life

events, higher scores on the Quality of Life Depression Scale, and lower alcohol risk at baseline, all predicted complete remission at 9 months, also after adjustment for relevant sociodemographic and illness-related factors.

Bech and co-workers [30] found that patients who have moderate depression and a co-morbid serious medical condition had the lowest (17%) improvement rate, while patients with moderate-severe depression without co-morbid illness had the highest (24%) improvement in depression scores during a 12 month follow-up (based on pooled analysis from all sites). This finding suggests that having a serious medical condition might contribute to depression outcomes.

Comment

Published data suggest that depression is common in primary care settings in Israel, particularly among women and those with fewer years of education. Its course is usually chronic, and it is strongly associated with disability, decreased quality of life, and increased health-related expenditure. Many cases of depression in primary care are undiagnosed and inadequately treated. In addition, depressive symptoms that do not fulfill criteria for major depressive disorder are also associated with disability, poor functioning, and increased health care utilization. Therefore, sub-threshold depression requires clinical attention and further research. Our review suggests a somewhat lower prevalence of depression in primary care in Israel, compared to prevalence reported in Europe and the United States. Furthermore, in Israel depression was found to be less consistently associated with some of the sociodemographic parameters, such as immigration status. Studies in Israel did not confirm the reported association between depression and lower work-related productivity.

Interestingly and counter to what might have been expected, the studies we reviewed did not seem to suggest that rates of depression are higher in Israel relative to other countries, despite exposure to chronic stress and the high number of Holocaust survivors and their offspring (the so-called second generation) residing in Israel. Similarly, two other studies [12] did not find elevated depressive symptomatology in a population-based sample in Israel.

It is possible, however, that Israeli primary care studies underestimate the true prevalence of depressive disorders. In the LIDO study, for example, 4% of the sample was excluded from the study despite scoring positive for depressive symptoms, because they reported receiving treatment for depression in the 3 months prior to the study. In addition, half of the initial study sample (i.e., individuals with clinically significant depressive symptoms) dropped out of the study and were not further assessed for major depressive disorder. In the study by Kafman et al. [2], half of those scoring positive on the three-item screening tool (indicating potentially significant depressive symptoms) did not complete further assessment for depressive disorder. Indeed, analysis of 50 randomly selected medical charts of those refusing further assessment revealed that an additional 10 patients (20%) had a documented depressive disorder. Hence, an additional 4% of the original sample might have had some form of depres-

sive disorder. This would yield a total prevalence of depressive disorders of 6.7%.

Differences in prevalence of depression across studies may have also resulted from different ascertainment methods. For example, prevalence of depressive symptoms has been assessed by self-report instruments [24,26] or by diagnostic interviews [32]. Samples studied also varied sociodemographically. The LIDO group studied a sample of primary care patients aged 18–75 drawn from several rural community practices, whereas Shvartzman and colleagues [32] studied 21–65 year old patients from urban clinics. Another study used a sample comprised of urban residents over 60 [26]. Hence, based on the studies reviewed here, the true prevalence of depressive symptoms and disorders among Israeli primary care patients overall is difficult to determine.

Implications for practice

Depression represents a serious challenge for public health in Israel. As primary prevention for depression is not yet readily feasible [39], efforts should be directed at treating acute episodes and secondary prevention, i.e., prevention of recurrent depressive episodes. Such efforts should include early detection and prompt intervention, building on the availability of effective pharmacological [4] and psychological [40] treatments. Clinical outcomes should be closely monitored to assess treatment efficiency and therapy should be tailored accordingly.

Limitations and direction for future research

Five of the 12 reports were based on a single Israeli primary care study, which was part of a large international study. Clinics for this study may have been chosen for pragmatic reasons, and some employed a convenience sample of patients [24] which raises some concerns regarding the representativeness of the sample and the generalizability of the findings. Further studies of large and systematic samples of primary care patients are needed. Such studies should use reliable, validated instruments to assess depression and should collect data on psychiatric and medical co-morbidities.

In the U.S., observational studies of the burden of depression in primary care have prompted randomized controlled trials in order to evaluate the cost-effectiveness of improved depression treatment [28]. Similar randomized trials are needed in Israel.

To further advance our understanding of the predictors of treatment and recovery from depression in the Israeli primary care system, future research should: a) evaluate the role of patient-related and provider-related factors that act as barriers to recognition and treatment of depression, b) evaluate study collaborative care models, c) focus on populations that have not been adequately addressed (such as immigrants and minorities), and d) examine the role of educational and organizational interventions in improving the detection and management of depression in primary care.

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