Psychiatric Epidemiology in Turkey: Main Advances in Recent Studies and Future Directions

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Objective: To overview and evaluate the main findings, methodological shortcomings, and time trends of the recent psychiatric epidemiology studies in Turkey, as well as to provide areas prone for development in forthcoming research.

Method: PubMed and Turkish Psychiatry Index were screened to identify relevant studies. Any epidemiological study from 2000 to 2012 with a general population or unique sub-population sample was included. Papers and results were classified as depression, anxiety, psychotic, dissociative, conversion, personality, alcohol and substance abuse, and trauma-related disorders, and common geriatric disorders.

Results: There are various epidemiological studies on various psychiatric disorders in Turkey. However, there are main shortcomings and trends in research that subsequently stagnate current psychiatric epidemiological research. First, epidemiological studies were mainly conducted for academic purposes, not for addressing epidemiological issues or issues of health policy. Second, studies mainly focused on particular fields and institutions, which led to non-systematic accumulation of epidemiological results. Third, although Turkey is a natural laboratory of social conflicts and disasters, there were few studies with a focus on probable outcomes. Fourth, high-quality epidemiological studies with disseminating results tended to decrease, even in common mental disorders such as depression. Fifth, there were very few epidemiological studies using contemporary designs such as follow-up, genetic, or biomarker data in the general-population.

Conclusion: Although psychiatric epidemiological studies of the last decade provide a suitable ground for future challenges, current trends in this research area has tended to stagnate, despite the potential for unique contributions. Forthcoming studies and researchers may notice novel methodological developments in epidemiology, with a growing attention on rapid urbanization, natural disasters, social conflicts, and migration.

Key words: Psychiatry, epidemiology, trends, risk factors, Turkey

INTRODUCTION

Epidemiology is a medical science of distribution, risk factors, and course of health and disease conditions in populations. Epidemiological survey methods maintain a pivotal position in predicting and measuring the health status of populations (Susser 1973). Psychiatric epidemiology applies the general methodology of epidemiology to mental disorders and consists of descriptive and etiology-oriented analytical studies (Kessler 2000).

Psychiatric epidemiology has passed through four phases during the last two centuries (Mezzich and Ustun 2004). In the first phase, estimates and related features of disorders were based on registries of mental health services, especially large asylums. In the second phase, mental disorders were screened for within the general population. In the third phase, structured diagnostic instruments with international reliability and potential to diagnose similar clinical conditions in various cultural settings were introduced to mental health research

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(Mezzich and Ustun 2004). Throughout those three phases, the majority of epidemiological studies were descriptive, and only a minority of the studies was etiology-oriented analytical studies (Kessler 2000). In the fourth phase, a new generation of screening instruments was introduced in order to achieve more analytical results. More studies, e.g. longitudinal cohort studies, were introduced to understand the etiology of mental disorders (Kessler 2000).

Following the international trend, initial psychiatric epidemiology studies in Turkey were based on hospitalized patients (Küey et al. 1987). In the1980s, general population studies began to be conducted. In the 1990s, structured diagnostic instruments with international reliability began to be used in general population screenings. Mental Health Profile of Turkey, which reported its results in 1998, still remains the only general population study that has been conducted countrywide (Erol et al. 1998). This study provided prevalence estimates of psychiatric disorders in all age groups that were also suitable for international comparisons, and was the first collaboration with international institutions such as World Health Organization (Kılıç 1998). Nevertheless, there have not been any new studies similar in scope to the Mental Health Profile of Turkey. Furthermore, there is not a representative example of an analytical study providing risk or protective factors for mental disorders in Turkey (Binbay et al. 2010).

Previous reviews have emphasized the qualitative and quantitative shortcomings of psychiatric epidemiology in Turkey (Aker 2006, Akvardar 2005, Binbay et al. 2011a, Kaya ve Kaya 2007, Küey et al. 1987, Yargıç and Özdemiroğlu 2010). In this review, we aimed to focus on the epidemiological studies published on Turkey after 2000. We reviewed general trends within the survey field, main outcomes as prevalence estimates and risk factors when indicated, improvements and stagnations, unique contributions, and untouched points within the epidemiological field. We also discussed potential areas for further improvements in the near future.

METHOD

We performed a relevant literature search using PubMed and Turkish Psychiatry Index. A search combination of each relevant disorder (e.g. depression AND Turkey) was used for identifying papers published in any language. We included papers published between January 2000 and January 2012. We chose this period since there was an extensive general population study (Mental Health Profile of Turkey) just before 2000 (Kılıç 1998). Also, there were reviews of epidemiological studies published before or during the 1990s. Due to methodological disparities, we did not compare the prevalence estimates of the included studies with the prevalence estimates of the Mental Health Profile of Turkey. However, we did compare the quality and scope of recent studies.

We primarily included general population studies. However, whenever there were very few studies on a particular mental disorder, we included studies of subgroups (e.g. students, outpatients). We also included studies of populations including specific age groups (e.g. adolescents, elderly) and populations sharing similar properties (e.g. postpartum women, prisoners).

This review covers studies about the mental disorders of depression, anxiety, psychosis, post-traumatic events, conversion, dissociation, alcohol and substance misuse, personality, and the geriatric age group. For each disorder, main outcomes (e.g. prevalence estimate), methodological features (e.g. screening instrument), and major results of the studies were presented in separate tables. Furthermore, we tried to identify shortcomings and future probable advances compared to international trends in psychiatric epidemiology (Kessler 2000). In the discussion section, we present the general view and future directions of psychiatric epidemiology in Turkey.

Screening of PubMed revealed 247 studies (depressive disorders 75, anxiety disorders 43, psychotic disorders 8, post-traumatic stress disorder [PTSD] 35, conversion disorders 10, dissociative disorder 9, alcohol- and substance misuse-related disorders 31, personality disorder 3, geriatric disorders 33). Screening of the Turkish Psychiatry Index revealed 695 studies ("prevalence" 172, "epidemiology" 125, "incidence" 360, "sample" 25, "rate" 13). Abstracts of each paper were evaluated in order to detect and include epidemiological papers. To identify more papers, we also screened references of included papers and book sections of the main psychiatric textbooks in Turkey.

RESULTS

Depressive Disorders

Research on psychiatric epidemiology in Turkey was pioneered by studies on depressive disorders beginning in the 1960s (Küey and Cimilli 2007). Although epidemiological studies in the 1990s were primarily on mental disorders in primary care, utilization of mental health services, and disability in mental disorders, studies of the general population were also conducted during this period (Doğan 1995, Kılıç 1998).

The epidemiological studies on depressive disorders conducted after 2000 are shown in Table 1. The studies are shown under the subgroups of depression after childbirth, in women, in adolescents, in university students, in other groups, and other depressive disorders. After reviewing the studies during this period, some positive conclusions could be made.

Table 1. Epidemiological studies of depressive disorders

Region-City, References	Sample, Age, Prevalence	Sample Size	Screening Tool	Result (%)	Notes
Post-Partum					
5 Eastern Provinces, (Inandi et al. 2002)	Point prevalence	2514	E-PNDS	27.2	-
Ankara, (Cebeci et al. 2002)	Point prevalence	100	BDI, STAI	10-15	Risk factors, level of anxiety were provided
Manisa, (Danaci et al. 2002)	Point prevalence	257	E-PNDS	14	Risk factors were provided
Edirne, (Ekuklu et al. 2004)	Point prevalence	210	E-PNDS	40.4	Risk factors were provided
Mersin, (Bugdayci et al. 2004)	Point prevalence	1447	E-PNDS	29.0 (0-2 months) 36.0 (3-6 months) 36.0 (12 months) 42.0: +12 months	Risk factors were provided
Erzurum, (Aydin et al. 2005)	Point prevalence	728	E-PNDS	34.6	Risk factors were provided
Hatay (multi-center), (Inandi et al. 2005)	Point prevalence	1350	E-PNDS	31.1	Risk factors were provided
Izmir, (Gulseren et al. 2006)	Point prevalence	125	E-PNDS	21.6 (prenatal) 16.8 (postpartum 5-8 week) 14.4 (10-14 week) 9.6 (20-26 week)	Cohort study after 3rd trimester; risk factors of prenatal and postpartum period were provided
Trabzon, (Ayvaz et al. 2006)	Incidence (Postpartum 6th to 8th weeks)	192	GHQ, BDI, BAI, E-PNDS	28.1	Main risk factors were previous postpartum depression and prenatal anxiety
Konya, (Akman et al. 2007)	Incidence (Postpartum 1st to 6th weeks)	302	SCID	6.3	Comorbid personality disorders and risk factors were provided
Edirne, (Dindar and Erdogan 2007)	Point prevalence	679	E-PNDS	25.6 (mild) 16.7 (severe)	Risk factors were provided
Ankara, (Kitiş and Karaçam 2009)	Point prevalence	488	BDI	24.2	Negative correlation with perceived social support
Malatya, (Yagmur and Ulukoca 2010)	Point prevalence; low SES	785	E-PNDS	21.0	Associated with perceived social support; two outcome measures were correlated
Erzurum, (Kirpinar et al. 2010)	Point prevalence	479	E-PNDS	17.7 (1st week); 14.0 (6th week)	Risk factors were provided
Erzurum, (Kırpınar et al. 2012)	Incidence	479	E-PNDS, SCID	14.0 (self-report); 6.0 (clinical)	Questions the specificity of postpartum depression due to rates similar to general population
Females					
Izmir, (Kayahan et al. 2003)	Point prevalence; 15-49 years	232	BDI, HAM-D	25.8	HAM-D for the ones scoring BDI>14; risk factors were provided
Şanlıurfa, (Simsek et al. 2008)	Lifetime prevalence; years 15-49; married	270	SCID	7.3	Risk factors were provided
Eskişehir, (Ünsal et al. 2008)	Point prevalence; +40 years	691	BDI>17	16.6	Risk factors were provided
Malatya, (Vırıt et al. 2008)	Pregnant; outpatient admission	104	BDI	18.3 (Severe)	Associated with perceived social support
Ankara, (Karacam and Ancel 2009)	Pregnant; outpatient admission	1039	NS	27.9	Risk factors were provided
Elazığ, (Deveci et al. 2010)	Postmenopausal	519	BDI>17	42.2	Risk factors were provided
Sivas (Golbasi et al. 2010)	Pregnant	258	E-PNDS	27.5	General population; risk factors were provided
Sivrihisar-Eskişehir, (Unsal et al. 2011)	Postmenopausal; 45-65 years	744	BDI	24.7	Risk factors were provided
Manisa (rural), (Cengiz Özyurt and Deveci 2011)	15-49 years	225	BDI>17	14.7	Higher among individuals with domestic violence and chronic illness

Table 1 continue

Adolescents					
Mardin, (Ceylan et al. 2003)	Students, high school	444	BDI>17	37.0	Risk factors were provided
Ankara, (Ergene and Yıldırım 2004)	Students, pre-exam	984	BDI	45.0; moderate 17.0	Risk factors were provided
Mersin, (Toros et al. 2004)	Students, 10-20 years	4256	Children's BDI>19	12.5	Higher in girls
Eskişehir, (Unsal and Ayranci 2008)	Students, high school (14-19 years)	846	BDI	30.7	Higher in girls
Aydın, (Eskin et al. 2008)	Students, high school	805	CDI	17.5	Higher in girls
Sivas, (Çetinkaya et al. 2008)	Students, secondary school	535	CDI	13.1	Higher in individuals with poverty
Istanbul-Fatih, (Demir et al. 2011)	Students, secondary school	1802	CDI, K-SADS	4.2 total; 1.5 MDD; 1.7 dysthymia	Risk factors were provided
University Students					
Denizli, (Bostanci et al. 2005)	University students	504	BDI	26.2	Risk factors were provided
Malatya, (Aylaz et al. 2007)	Students, technical college	236	BDI	25.4	Risk factors were provided
Malatya, (Kaya et al. 2007)	Students, school of medicine and technical college	754	BDI	21.9 School of medicine; 31.8 technical collage	Risk factors were provided
Bursa, (Bayram and Bilgel 2008)	University students	1617	DASS-42	27.1	Risk factors were provided
Tokat, (Çam Çelikel and Erkorkmaz 2008)	University students	1971	BDI	35.2	Depression was associated with hopelessness
Izmir, (Yücel et al. 2009)	University students; depressive symptoms	479	PMSS, GHQ	48.0	Depression was higher in premenstrual syndrome
Manisa, (Taşkın et al. 2009)	University students	1026	BDI	20.6	Depression was associated with separation-individuation process
Subgroups					
Ankara, (Tekbas et al. 2003)	Males in military poll	2910	BDI	29.9	Higher than general population
Konya, (Kaya et al. 2004)	Prisoners; 12-month prevalence	305	CIDI	29.2	Higher in individuals with repeated convictions
Istanbul, (Taycan et al. 2006)	Nurses	561	BDI	11.4	Depression associated with burn-out
Denizli, (Erdur et al. 2006)	Doctors in emergency room	192	NS	29.0	Anxiety was also prevalent
Istanbul, (Demir et al. 2007)	Medical Trainees	156	BDI	16.0	Higher in females; negative correlation with occupational satisfaction
Sivas, (Kugu et al. 2008)	Prisoners	70	SCID	7.1	Antisocial personality and substance abuse were also prevalent
Other Depressive Disorders					
8 centers in Turkey, (Elbi et al. 2002)	SAD; random sampling in general population	1749	SPAQ	4.8 winter-type; 8.3 sub-threshold	Similar estimates when compared to estimates from the same latitude
10 previnces in Turkey, (Özmen et al. 2002)	Dysthymic Disorder; 12-month prevalence; primary health care admissions	1997	CIDI	3.5	Comorbidity with chronic illness 73.9%; presentation with somatic symptoms 71.4%; diagnosis in only 13.8%
Şanlıurfa, (Simsek et al. 2008)	Dysthymic Disorder; females, 15-49 years; lifetime prevalence	270	SCID	1.6	-

BAI: Beck Anxiety Inventory, BDI: Beck Depression Inventory, GHQ: General Health Questionnaire, E-PNDS: Edinburgh Postnatal Depression Scale, SES: Socioeconomic status, STAI: State-Trait Anxiety Inventory, HAM-D: Hamilton Depression, SCID: Structured Clinical Interview for DSM-IV, CDI: Children's Depression Inventory, K-SADS: Schedule for Affective Disorders and Schizophrenia for School-Age Children, MDD: Major Depressive Disorder, DASS: The Depression Anxiety Stress Scale 42, PMSS: Premenstrual Syndrome Scale, CIDI: Composite International Diagnostic Interview, SAD: Seasonal Affective Disorder, SPAQ: Seasonal Pattern Assessment Questionnaire, NS: Not specified

First, the epidemiological studies on depression have spread throughout the country during this period. This development may be a result of the spreading of psychiatric services to general hospitals throughout the country and the increase in the number of medical schools. Second, publication of studies on the epidemiology of depression in international journals was increased during this period. This could be related to the change in the criteria for academic appointments. This development has increased the international viability of scientific data from Turkey and has provided a base for international collaboration. Third, research conducted after natural disasters have increased. Fourth, the increased sensitivity to the social problems of women, who have a greater risk of depression, has resulted in an increase of epidemiological studies on depressive disorders conducted on women. Last, research on different risk groups, such as medical patients, young people, health workers, and imprisoned people, has been started during this period. These studies have provided data on the prevalence and associated features of depression in these subgroups.

Research conducted during this period also has some deficiencies. First, field studies on large general population samples were conducted during this period. Most research was consisted of local studies with limited resources. Self-report measures were used in most of the studies instead of structured clinical interviews. Therefore, it can be concluded that most of the results are related to the prevalence of depressive symptoms rather than of depressive disorders.

Anxiety Disorders

Epidemiological studies about anxiety disorders are presented in Table 2, which mainly includes cross-sectional studies. Also, there were studies of clinical samples that reported that obsessive-compulsive disorder (OCD) was associated with younger age of onset in males. They also indicated that obsessions concerning microbial agents were more common in females, while obsessions of aggression and sexual obsessions were more common in males (Tukel et al. 2004, Demet et al. 2005, Karadag et al. 2006). The main comorbid symptom was depressive symptoms (Tukel et al. 2004, Demet et al. 2005, Karadag et al. 2006, Ozcan et al. 2006).

After 2000, there were a few epidemiological studies on anxiety disorders in Turkey. Sampling designs of most studies were based on outpatient admissions or university students. Therefore, the interpretation and extension of their results to the whole population is limited.

In conclusion, assessment of frequencies of anxiety disorders and their relationship with sociodemographic characteristics, etiologies and cultural factors is insufficient due to a lack of data in Turkey. There is an urgent need for population-based studies including large sample sizes from multiple centers.

Psychotic Disorders

There were limited community-based epidemiological studies on schizophrenia and psychotic disorders in Turkey (Binbay

Table 2. Epidemiological studies of anxiety disorders

Region-City, References	Sample, Age, Prevalence	Sample Size	Screening Tool	Result (%)	Notes
Konya, (Cilli et al. 2004)	General population; +18 years; 12-month prevalence	3012	CIDI 2.1	3.0 OCD	Age of onset: 26; higher in divorced, separated and widowed individuals; obsession 30.0% and obsession+compulsion 68.5%
Aydın, (Gültekin and Dereboy 2011)	University students; point prevalence	700	LSAS	21.7 SAD	Specific SAD 5.7%; general SAD 16.0%; quality of life is lower
Sivas, (Kirmizioglu et al. 2009)	General population; +65 years; point prevalence	462	SCID	0.4 PD 3.2 OCD 1.9 PTSD 2.8 SAD 6.9 GAD 11.5 SP	-
Adana, (Yoldascan et al. 2009)	University students; point prevalence	804	CIDI 2.1	4.2 OCD	-
Sivas, (Izgic et al. 2004)	University students; point prevalence	1003	DIS	9.6 SAD	Self-esteem was lower in SAD
Şanlıurfa, (Simsek et al. 2008)	Females 15-49 years; lifetime prevalence	270	SCID	4.8 SP 3.6 PTSD 3.2 OCD 2.2 AD-GMC 1.2 PD	Main risk factors: domestic violence, previous trauma, anemia, and cutaneous leichmaniasis
Van, (Selvi et al. 2010)	Students, high school; point prevalence	520	CIDI 2.1	5.9 OCD	Higher in individuals with family history of mental disorder, smoking

CIDI: Composite International Diagnostic Interview, OCD: Obsessive-compulsive Disorder, LSAS: Liebowitz Social Anxiety Scale, SAD: Social Anxiety Disorder, SCID: Structured Clinical Interview for DSM-IV, PD: Panic Disorder, PTSD: Post-Traumatic Stress Disorder, GAD: Generalized Anxiety Disorder, SP: Specific Phobia, DIS: Diagnostic Interview Schedule, AD-GMC: Anxiety Disorder due to General Medical Condition

Table 3. Epidemiological studies of trauma-related disorders

Region-City, References	Sample, Age, Prevalence	Sample Size	Screening Tool	Result (%)	Notes
Natural Disasters					
Adana, (Uğuz et al. 2000)	1998 Adana earthquake; prevalence in the 1st month; 6-78 years	525	DSM IV criteria	23.0 ASD	Risk factors: previous mental disorder and escape from a damaged building
Gölcük, (Basoglu et al. 2002)	1999 Marmara earthquake; prevalence at the 8th month; residents of tent cities	1000	SITSES	43.0 PTSD 22.0 MDD	Risk factors: severe fear during the quake, female gender, rescue from underneath the debris, death of a family member, previous mental disorder, lower level of education, participation in the rescue
Değirmendere ve Gölcük (Livanou et al. 2002)	1999 Marmara earthquake; admission based prevalence at the 8th month; residents of tent cities	1027	TSSC	63.0 PTSD 42. MDD	Risk factors: severe fear during the quake, female gender, rescue from underneath the debris
Bolu - Düzce (Kilic and Ulusoy 2003)	1999 Düzce earthquake; prevalence at the 18th month; compares difference in rates	282 (B) 148 (D)	TSSC	18.6 and 41.9 PTSD 11.5 and 28.4 MDD	Risk factors (PTSD): severe fear during the quake, female gender, death of a family member, lower level of education Risk factors (MDD): distance to the center, previous mental disorder
Değirmendere ve Avcılar (Basoglu et al. 2004)	1999 Marmara earthquake; prevalence at the 14th month; adult population	530 (D) 420 (A)	SITSES	23.0 PTSD, 16.0 MDD (D) 14.0 PTSD, 8.0 MDD (A)	Risk factors (PTSD): severe fear during the quake, female gender, death of a family member, previous mental disorder, participation in the rescue
Kocaeli (Karakaya et al. 2004)	1999 Marmara earthquake; prevalence after 3.5 years; secondary school students	334	CPTSD-RI BDI	22.2 PTSD 30.8 MDD	Long-term traumatic stress, prominent correlation between anxiety and depression
Kocaeli (Tural et al. 2004)	1999 Marmara earthquake; prevalence after 3.5 years; 16-65 years	910	PTSD-S	25.0 PTSD	Traumatic outcome was associated with age
Kocaeli (Yargıç et al. 2004)	1999 Marmara earthquake; prevalence after 3.5 years; 17-65 years	144	IES-R	23.6 PTSD	Severe fear during the quake, female gender
Istanbul, (Karamustafalioglu et al. 2006)	1999 Marmara earthquake; prevalence estimates at the 1st, 3rd, 6th, 10th and 20th months; 16-65 years	464	-	30.2 (1st month) 26.9 (10th month) 10.6 (20th month)	Decreasing trend in rates among females
Ankara (Kilic et al. 2006)	1999 earthquakes; migrants; prevalence after 4 years; 16-65 years	526	-	25.0 PTSD 11.0 MDD	Social status in the location of migration was only associated with depression
Eskişehir (Aksaray et al. 2006)	1999 Marmara earthquake; prevalence in admissions	184	MS-PTSD, BDI, SCL-90-R	-	Higher rates of traumatic stress, depression, anxiety, somatic symptoms in females
Kocaeli (Onder et al. 2006)	1999 Marmara earthquake; prevalence after 3 years	683	CIDI 2.1, TSSC, BDI	19.2 PTSD 18.7 MDD	Increase in depression, anxiety and trauma-associated disorders; high comorbidity and low remission
Kocaeli (Salcioglu et al. 2007)	1999 Marmara earthquake; prevalence after 3-4 years	769	SITSES	40 PTSD 18 MDD	PTSD was associated with fear during the quake; depression was associated with death of family members
Değirmendere and Avcılar (Kılıç 2008)	1999 Marmara earthquake; prevalence	2007	SITSES	34.0	Higher in females; admission rate was 42.0%; admission was higher in females

Table 3 continue

Istanbul, (Eksi and Braun 2009)	1999 Marmara earthquake; point prevalence after 1-2 month; secondary school students	160	CAPS	60.0 PTSD 30.0 Depression or anxiety	Main risk factor for chronicity was being rescued from under the debris
Istanbul (Demir et al. 2010)	1999 Marmara earthquake; point prevalence after 1-2 years; admission based; 2-15 years	321	-	16.5 ASD 25.5 PTSD 38.0 AD	Risk factor: Death of a family member
Kocaeli (Dogan 2011)	1999 Marmara earthquake; point prevalence after 13 months; 12-17 years	695	CPTSD-RI	76.0 (any endorsement)	Prevalence increases in the center of the quake
Çubuk (Bozkurt et al. 2011)	Çubuk tornado; prevalence after 12 months; adult population	188	CAPS	18.7 PTSD	Risk factors: Direct exposure and being +60
Man-Made Disasters					
Diyarbakır (Yasan et al. 2008)	Lifetime and point prevalence in the zone of conflict	708	SITS	34.9 (Lifetime) 15.1 (Point)	Combat related traumatic events increase PTSD
Diyarbakır (Eşsizoğlu et al. 2009)	Adults witnessed terrorist attack; point prevalence	216	SITS	12.5 (1st month) 9.6 (3rd month)	Risk factors: previous mental disorder and attack related injury
Diyarbakır (Yasan et al. 2009)	Adults after any traffic accident; point prevalence	95	-	41.1 (ASD) 17.9 (PTSD – 12th month)	Chronicity was associated with level of stress, social support and impairment after the accident

ASD: Acute Stress Disorder, SITSES: The Screening Instrument for Traumatic Stress in Earthquake Survivors, PTSD: Post-Traumatic Stress Disorder, MDD: Major Depressive Disorder, TSSC: Traumatic Stress Symptom Check List, CPTSD-RI: Child Posttraumatic Stress Reaction Index, IES-R: Impact of Event Scale-Revised, BDI: Beck Depression Inventory, MS-PTSD; Mississippi Scale for PTSD, SCL-90-R: Symptom Check List, CAPS: Clinician-Administered PTSD Scale, CIDI: Composite International Diagnostic Interview, AD: Adjustment Disorder, SITS: Screening Instrument for Traumatic Stress

et al. 2011a). Recently, important studies were conducted on psychotic disorders in Izmir. In one of those studies, the prevalence of clinically significant psychotic-like experience was found to be 3.5% (Alptekin et al. 2009). The rates of clinically significant psychotic-like experiences were higher in women, people with low education level, and people who use alcohol. In another study, it was found that the psychosis continuum, which causes different levels of impairment of functionality, affects 25% of the general population (Binbay et al. 2011b, Binbay et al. 2012a). In the same study, the lifetime prevalence of psychotic disorders (schizophrenia and other psychotic disorders, mood disorders with psychotic features, psychotic disorders due to general medical condition or substance use) was found to be 2.6% in the general population for the first time (Binbay et al. 2012b). Also, different risk relations were shown between psychotic disorders, psychotic symptoms, psychotic-like experiences, and intra-community features in cities (social capital of neighborhood, poverty and unemployment) (Binbay et al. 2012c).

Epidemiologic studies investigating psychosis, specifically schizophrenia, found that environmental factors like pregnancy and delivery complications, history of sexual and physical abuse in early childhood, traumatic life events, economic problems, lack of psychosocial support, immigration and being an immigrant, urbanization, stressful workplace environment, and cannabis and alcohol use increase the risk of psychotic disorder (Binbay et al. 2007). However, environmental factors alone were insufficient to explain the onset of the disorder. Only some people who share similar environmental conditions become psychotic. Therefore, the biological features of individuals are as important as environmental factors. Many biological processes related to brain development could especially cause the brain to be vulnerable to psychosis (van Os et al. 2010). It has been demonstrated in several studies that every environmental and biological process that sensitizes the dopaminergic system in the brain can cause psychosis (Collip et al. 2008). A family history of mental disorders, especially psychosis and schizophrenia, increase the risk of psychosis (van Os et al. 2010).

Genes including dysbindin, zinc finger protein 804A, neuregulin-1, and DISC were recently found to be candidate genes (Rees et al. 2012). The most valid current hypothesis for psychosis and schizophrenia is that genetic, biologic, and environmental interactions cause psychosis in vulnerable individuals (van Os et al. 2010). However, psychosis studies still have difficulties in finding answers. The main reason for this difficulty is that the boundary of clinical characteristics of psychosis is unclear. For this reason, new definitions for clinical dimensions of psychosis and schizophrenia may bring a different approach for epidemiologic studies of psychosis and schizophrenia, making it easier to find an answer.

Post-Traumatic Stress Disorder

The results of the epidemiological studies concerning psychotraumatology done after the year 2000 are shown in table 3. The studies are organized in two different groups: natural events and human-made traumas. Since time after the disaster, level of exposure (direct or indirect exposure), and nature of the traumatic event are varied, there are differences in the prevalence rates of the disorders. Although various traumatic events have been experienced widely in Turkey, the studies were focused mainly on natural events, especially earthquakes. Earthquake studies have increased considerably after the 1999 Marmara Earthquake.

According to the results, the most prevalent psychopathologies observed after natural events are PTSD and major depression (MD). Living close to the epicenter of the disaster is the main risk factor for developing PTSD after natural disasters, whereas the severity of exposure (i.e. displacement due to armed conflicts) and psychiatric history are the risk factors for developing psychopathology after human-made disasters. In addition, the risk of psychopathology is higher in female survivors. Traumatic stress symptoms and trauma-related psychopathology decrease as the time after the disaster increases. However, PTSD and MD prevalence rates are still high even after long periods of time following the disasters.

There are many restrictions in the methodology of psychological trauma studies. The use of self-rating scales for the assessment of diagnostic criteria, sampling methodologies, and the use of cross-sectional research designs are the main methodological limitations.

Additionally, the evaluation of the psychological impact of a traumatic event such as the unexpected death of a loved one within the PTSD criteria poses problems. Furthermore, the scales that have been developed for the assessment of traumatic grief or complex PTSD were not used in the surveys. Therefore, we are far away from assessing the entire scale of trauma-related disorders in the large surveys.

Because the studies about psychological trauma were often designed according to the effect of the traumatic event on a certain subset of the population, it is difficult to generalize the results of the studies. Therefore, it can be said that systematic reviews or meta-analysis display more comprehensive results in terms of the effects of various traumatic events. Cohort and intervention studies would also have important value for the literature.

Conversion Disorder

In spite of being a frequent problem in clinical services in Turkey, there is not an agreement upon the rate of conversion disorder within the population. Some Turkish studies

Table 4. Epidemiological studies of conversive and dissociative disorders

Region-City, References	Sample, Age, Prevalence	Sample Size	Screening Tool	Result (%)	Notes
Conversion Disorder					
Manisa, (Deveci et al. 2007)	General population; 15-65 years; lifetime prevalence	1086	CIDI	5.6	Risk factors: females, younger age, slum areas, previous mental disorder, maternal mental disorder
Dissociative Disorder					
Istanbul, (Sar et al. 2003)	Psychiatric outpatients; 16-75 years; screening for 3.5 months; lifetime prevalence	240	DES, SDQ, SCID-I&II, SCID-D, DDIS	13.8 (Any DD) 2.5 (DID)	DES mean=20.0 (SD=18.9); DES>25 or SDQ>35= 27.9%
Istanbul, (Sar et al. 2007b)	Psychiatric emergency; 13-71 years; screening for 2 months; lifetime prevalence	43	DES, SCID-D	34.9 (Any DD) 14.0 (DID)	DES mean=23.4 (SD=19.3); DES>25=39.5%
Sivas, (Sar et al. 2007a)	General population; female; 18-65 years; lifetime prevalence	628	DES, DDIS, SCID-D, SCID I&II	18.3 (Any DD) 1.1 (DID)	DES mean=11.8 (SD=10.2); DES>30=6.4%
Istanbul, (Karadag et al. 2005)	Addiction inpatients; 17-68 years; lifetime prevalence	215	DES, DDIS, SCID-D	17.2 (Any DD) 2.8 (DID)	DES mean=24.5 (SD= 17.5); DES>30=36.7%
Istanbul, (Tamar-Gurol et al. 2008)	Addiction (cannabis) inpatients; 17-46 years; lifetime prevalence	104	DES, DDIS, SCID-D	26.0 (Any DD) 5.8 (DID)	DES mean=29.0 (SD=18.2); DES>30= 46.2%
Istanbul, (Evren et al. 2007)	Addiction (alcohol) inpatients; 18-68 years; lifetime prevalence	111	DES, DDIS, SCID-D	9.0 (Any DD - No DID)	DES mean=22.9 (SD=16.5); DES>30=30.6%
Elazığ, (Tezcan et al. 2003)	Psychiatric inpatients; 18-56 years; lifetime prevalence	59	DES, DDIS, SCID-D	30.5 (Any DD) 15.3 (DID)	DES mean=22.4 (SD=18.3); DES>30=30.5%
Sivas, (Sar et al 2009)	General population; 18-65 years; female; lifetime prevalence	251	DES, DDIS	26.5 (Any DD) 2.3 (DID)	DES mean=14.2 (SD= 11.8); DES>30=8.1%

CIDI: Composite International Diagnostic Interview, DES: Dissociative Experiences Scales, SDQ: Somatoform Dissociation Questionnaire, SCID-I&II: Structured Clinical Interview for DSM-IV Axis I Disorders – Axis II Personality Disorders, SCID-D: Structured Clinical Interview for DSM-IV Dissociative Disorders, DDIS: Dissociative Disorders Interview Schedule, DD: Dissociative Disorder, DID: Dissociative Identity Disorder, SD: Standard Deviation

conducted on patients admitted to health offices have found the prevalence of conversion disorder to be between 4.5 and 32% (Özen et al. 2000).

In one study in Manisa city center (n: 1086, ages 15-65 years), the lifetime prevalence of conversion disorder with pseudoneurological symptoms was 5.6% (Deveci et al. 2007). In this study, the Composite International Diagnostic Interview (CIDI) was used and also supplemented with medical examinations of the individuals with pseudoneurological signs (Deveci et al. 2007). The prevalence of conversion disorder was significantly higher among women, young people, people who live as squatters, those with a history of psychiatric disorder, and those having a mother with a psychiatric disorder (Deveci et al. 2007). The main problem in the studies associated with conversion disorder is the low diagnostic validity (Atbaşoğlu and Gülöksüz 2013), especially since there is not enough evidence for the validity of the established diagnostic information and criteria to differentiate from neurological diagnoses (Nicholson et al. 2011). The single strong criterion in differential diagnosis is the normal neurological examination; however this criterion is open to disagreement and subjective mistakes (Stone et al. 2005). For this reason, the prevalence of conversion disorder will be different in every study.

Despite the controversy regarding diagnosis of conversion disorder, it is also widespread in the general population as in clinical practice. If conversion disorder is left undiagnosed and untreated, it becomes chronic, leading to decreased function, appearance of accompanying psychiatric diagnoses and, eventually, results in the development of both medical and neurological problems. In this respect, it is still of great importance to conduct epidemiological studies of conversion disorders periodically in different cultures and settlements.

Dissociative Disorders

Findings of epidemiological studies conducted on dissociative disorders (DDs) in Turkey after 2000 are summarized in Table 4. Lifetime prevalence of DSM-IV DDs was 18.3% in a representative female sample (n: 628) recruited from the general population in Sivas-City (Sar et al. 2007a). Dissociative disorder not otherwise specified (DDNOS) and dissociative amnesia were the most frequent diagnoses; i.e. 8.3% and 7.3%, respectively. The rates were 1.4% for depersonalization disorder, 1.1% for dissociative identity disorder (DID), and 0.2% for dissociative fugue. As the majority of the participants with a dissociative fugue were diagnosed as having DID or DDNOS due to concurrent dissociative symptoms, the prevalence of dissociative fugue as a solitary symptom and diagnosis remained low. In two separate studies conducted in the psychiatric outpatient unit of the same department using different methods, the prevalence of DDs was between 10-12% (Sar et al. 2000, 2003). The highest prevalence in clinical settings was obtained in the outpatient psychiatric emergency unit: 34.9% (Sar et al. 2007b). In studies conducted on general psychiatric outpatients and inpatients, the proportion of the subgroup with an elevated dissociative experiences score above the usual cut-off levels was between 15-30%. This rate was close to 40% among substance users or those patients who were admitted to an emergency psychiatric unit (Sar 2011).

Chronic dissociative disorders are more common in clinical settings compared to the general population. For example, the prevalence of DID is close to 5% in clinical settings. Moreover, while DDNOS (usually chronic as well) has a prevalence similar to DID in those studies, dissociative amnesia remains relatively rare (Sar 2011). Some populations are considered to be high risk for DDs. The prevalence estimates of DDs are 26.0% among chemical substance users (Tamar-Gurol et al. 2008), 9.0% among those who consume alcohol only (Evren et al. 2007), 17.2% among those who use alcohol and/or chemical substances (Karadag et al. 2005), 15.7% among male prisoners (Akyuz et al. 2007), 30.5% among psychiatric inpatients with a conversion symptom (Tezcan et al. 2003), and 63.7% among women in the general population who had a conversion symptom some time in their life (Sar et al. 2009).

Individuals who had a DD reported suicide attempts, self-mutilation, or childhood abuse and/or neglect more frequently than those who did not have DD, both in the studies conducted in the general population and in those samples recruited from clinical settings. Moreover, these variables are interdependent (Akyuz et al. 2007, Sar et al. 2007a, Zoroglu et al. 2003).

Considering gender differences, although DDs are usually reported to be more common among women than men, this proportion differs depending on the origin of the sample and the average age of the studied population (Sar 2011). A screening study on adolescents visiting high school (n: 862, Istanbul) did not reveal any difference in prevalence estimates between male and female students (Zoroglu et al. 2003). Apparently the gender difference in prevalence estimates is more prominent in clinical settings rather than in the general population and becomes predominant after adolescence. The latter issue may be related to factors facilitating contact with mental health services (Sar 2011). In outpatient psychiatric units, the female/male ratio is around 3/1 (Sar et al. 2000). In tandem with this observation, a history of childhood trauma is more common among women than men in clinical settings and in inpatient units in particular. However, this difference between genders disappears among college students; in fact, men report some childhood trauma types more frequently than do women (Sar et al. 2006). One possible explanation is that traumatized girls have more obstacles in continuing their education, possibly due to the consequences of a traumatic childhood.

Table 5. Epidemiological studies of other mental disorders

Region-City, References	Sample, Age, Prevalence	Sample Size	Screening Tool	Result (%)	Notes
Alcohol and Substance Related Disorders					
Whole country, study of PAT (Işıklı and Irak 2002)	General population; 15-64 years; lifetime prevalence	7681	-	1.3	Prevalence of substance abuse
Whole country, Health Study of WHO, (WHO 2004)	General population; +18 years; lifetime prevalence	11.220	WHO Instruments	18.9 1.1	Prevalence of alcohol use Prevalence of alcohol abuse
Whole country, Health Study of TurkStat, (TurkStat 2010)	General population; +15 years; lifetime prevalence	6.872 household	-	12.6	Prevalence of alcohol use
Personality disorders					
Istanbul, (Sar et al. 2006)	University students	1301	SCID II	8.5	Prevalence of Borderline Personality Disorder
Istanbul, (Evren et al. 2006, Kural et al. 2005)	Inpatients; alcohol or substance addiction	132	SCID II	34.8 (any PD) 23.5 (ASPD)	PD increases the risk of suicide attempt, self-harm, MDD and PTSD
Istanbul, (Eken et al. 2003)	Outpatients; alcohol addiction	105	SCID II	35.2 (any PD) 25.9 (ASPD)	Higher rates than general population as a comorbid condition in addicts
Istanbul, (Evren et al. 2011)	Outpatients; alcohol or substance addiction	200	Borderline Personality Inventory	68.0	-
Psychiatric Disorders in Elderly					
Istanbul, (Kulaksizoglu et al. 2005)	General population, +70 years, point prevalence	1067	GDS (cut-off point ≥14)	16.0	Female/Male: 3/1
Istanbul, (Nahçıvan and Demirezen 2005)	General population in a socially deprived area, +55 years, point prevalence	132	GDS (cut-off point ≥11)	50.0	Female/Male: 5/2
Trabzon, (Kavakçı et al., 2011)	General, +55 years, point prevalence	3093	GDS (cut-off point ≥11)	13.6	Female/Male: 7/2
Istanbul, (Gurvit et al. 2008)	General population, +70 years, point prevalence	1019	MMSE Structured interview	20.0 Dementia 16.0 AD	-
Denizli (Amuk et al., 2009)	Nursing home residents, mean age 75 (±9.8), point prevalence	141	MMSE SCID-I	62.4 Dementia	67% of cases were AD, 25% of cases were vascular dementia

SCID II: SCID-I&II: Structured Clinical Interview for DSM-IV Axis I Disorders – Axis II Personality Disorders, PD: Personality Disorders, ASPD: Anti-social Personality Disorder, PTSD: Post-Traumatic Stress Disorder, MDD: Major Depressive Disorder, GDS: Geriatric Depression Scale, MMSE: Mini Mental State Examination, SCID-I: Structured Clinical Interview for DSM-IV Axis I Disorders, AD: Dementia - Alzheimer Type

Future studies should screen the 12-month prevalence of DDs. The prevalence of the newly introduced acute dissociative disorder in DSM-5 (among other specific dissociative disorders) should be inquired about, including the subtypes such as those with psychotic features. According to a recent opinion paper by Sar et al. (2012), there are not yet any epidemiological studies on DDs conducted on children and adolescents which utilized age-adjusted diagnostic instruments and clinical confirmation.

DSM-5 introduced revisions in some of the diagnostic criteria for DDs (Spiegel et al. 2011). For instance, an experience of possession is covered in criterion A of DID. The revised criteria should be implemented in future studies. Predominant conversion symptoms may be a specifier for a subtype of DID. This would reconstitute the broken relationship between conversion disorder and DDs in DSM-5. In epidemiological studies conducted on DID and other DDs, screening of predominant conversion symptoms and comparison of DID

cases with or without conversion symptoms would provide the basis for such a revision in the future. To facilitate this, comparisons on clinical phenomenology as well as on external validators such as treatment response are required.

Alcohol- and Substance-Related Disorders

During the last 10 years, national and international studies have been done on the prevalence of alcohol and drug use in Turkey. According to the 2003 World Health Survey (sample population aged 18 years and over), the rate of lifetime abstainers was 81.1% (65.9% in males and 92.4% females); the rate of heavy and hazardous drinking (defined as average consumption of 40 g or more of pure alcohol a day for men and 20 g or more of pure alcohol a day for women) was 1.1% (1.9% in males and 0.5% in females); the rate of heavy episodic drinking (at least once a week consumption of five or more standard drinks in one session) was 0.9% (2.1% among males and 0.1% females) (World Health Organization 2004). Turkish Statistical Institute reported alcohol use prevalence as 12.6% (21.1% among men, 4.4% among women) (Turkish Statistical Institute, 2010). Turkey Burden of Disease Study declared that alcohol use related disorders ranked 18th among diseases that cause disability (Ministry of Health, 2006).

Alcohol use is relatively low in Turkey (Akvardar 2005). It is thought this may be related to religion (due to the precepts of Islam), to drinking customs (as drinking is not a part of daily life for the majority of persons and generally occurs in social gatherings such as weddings, etc.), and also may be related to underreporting because of social pressure. Men were more likely to drink alcohol, to be heavier drinkers, and to experience alcohol related problems. Traditionally, drinking is acceptable for men in Turkey; however with the changes in the social roles of women, the prevalence is increasing in females of the younger generation. The age of first use of alcohol is decreasing. The age of first use of alcohol is important in the risk of development of alcohol related problems (Akvardar et al. 2003).

The prevalence of drug use (other than alcohol and tobacco) was identified as 0.3%, and lifetime drug use was found to be 1.3%, in the first population-based study on drug use in Turkey (Işıklı and Irak, 2002). The Turkish National Assessment Study on Drug Abuse (2003) was conducted in the six major cities of Turkey – Adana, Ankara, Diyarbakir, Izmir, Istanbul and Samsun. Based on the background and multiplier information collected during the assessment studies, it is estimated that the prevalence of problem opioid users is 0.05% and inhalant users 0.06% within the general population between 15 and 64 years old in Turkey (UNODC 2003). In the ESPAD (The European School Survey Project on Alcohol and Other Drugs) study in 2003 among high school students aged 15-16, alcohol use in the last 12 months was identified as 35%, lifetime cigarettes use 50%, and cigarettes use in the last 30 days 18% (UNODC 2003). The prevalence of drug use was identified as cannabis 4.3%, inhalant 4.2%, sedative pills without recommendation of a physician 3.0%, ecstasy 1.8%, cocaine 1.6%, and heroine 1.5% (UNODC 2003).

According to calculation based on 159 deaths related to drug use among the population aged 15-64 in 2008, it is reported that approximately 25,000 persons might have a drug use problem in Turkey (Ministry of Interior, 2009).

Substance use studies were done in different demographic groups and with different methodologies in Turkey. These studies were completed with intensive effort, and they supply some information on the hardly spoken about subjects of alcohol and drug use; however, they are far from identifying and monitoring the problem. Systematic and comparable research that reflects the country's population should be repeated at regular intervals among the young and adult populations in order to understand the extent and characteristics of the problem and to develop preventive policies.

Personality Disorders

No study was found on the epidemiology of personality disorder (PD) in the general population in Turkey during the 2000s. Generally, the ratio of PD among clinical groups was reported in studies. The prevalence rate of borderline PD among university students was reported to be 8.5% in one study (Sar et al. 2006).

The majority of studies on the prevalence of PD in clinical populations consisted of patients with alcohol and/or substance abuse. These studies showed that one of three inpatients had any type of PD, and the most prevalent one was the antisocial PD (Eken et al. 2003, Kural et al. 2005, Evren et al. 2006). Two of three inpatients were found to have borderline PD in another study (Evren et al. 2011).

Methodological problems such as having a small sample size would lead to false high prevalence rates when working with clinical populations other than patients with alcohol/substance abuse. The prevalence rates of PD among patients with schizophrenia, chronic urticaria and anxiety disorder were reported to be 70%, 65% and 100%, respectively, in different studies (Karslıoğlu et al. 2012, Topal et al. 2004, Yaluğ et al. 2003).

The majority of studies on the epidemiology of PD are descriptive and case-control studies. These studies mainly included patients with antisocial PD and investigated the relationship of antisocial PD with childhood trauma, dissociative experiences, psychopathology, mood and character features, alexithymia, depression, anger, and aggression (Ateş et al. 2009, Basoglu et al. 2011, Erdem et al. 2010, Semiz et al. 2007, Turkcapar et al. 2004). Another study investigated the relationship between borderline PD and subjective sleep quality (Semiz et al. 2008)

Future research on the epidemiology of PD should be promoted with studies in the general population. Prevalence rate, relation with childhood traumata, and various cultural aspects such as migration and ethnicity could be researched. However, case-control studies, which are designed carefully with an elaborate sample selection procedure, would be informative in the absence of such sophisticated epidemiological studies.

Epidemiology of Psychiatric Disorders in Older Age

In Turkey, there are few studies on geriatric psychiatric disorders in the general population. These studies, which were carried out for the first time in the 2000s, mainly focused on depression or dementia.

In a sample in Istanbul (n: 1074) which was screened with the Geriatric Depression Scale (GDS), the prevalence of clinically significant depressive symptoms was 16%. Among those depressed, only 9% were on treatment for depression. In this study, depressive symptoms were more common in persons between 75 and 79 years of age and those who did not have any education (Kulaksizoglu et al. 2005). In a younger sample (n: 132), the prevalence of depressive symptoms that was measured using the same scale was 50% (Nahcivan and Demirezen 2005). Women, divorced individuals, those with no health insurance, and people living alone had a greater risk for depressive symptoms (Nahcivan and Demirezen 2005). In Trabzon, the prevalence of depressive symptoms with GDS was 13.6% (n: 3093), and these symptoms were more severe in women and in people with cognitive problems (Kavakçı et al. 2011).

There is only one study that explored cognitive functions in the general population (Gurvit et al. 2008). In this study, people above 70 years old were screened for dementia (n: 1019), and dementia was seen in 20% and Alzheimer's disease was seen in 16% of the sample. Prevalence was higher in older women and people with lower education (Gurvit et al. 2008).

The prevalence of dementia in a sample from a nursing home in Denizli (n: 141) was 62.4%. Among those, 67% had Alzheimer's disease. Risk factors for having dementia were advanced age, low educational level, and having one or more chronic diseases (Amuk et al. 2009).

The limited number of studies carried out in this field in Turkey shows that the prevalence of depression and dementia are similar to European countries. Low socio-economic status was found to be an important risk factor for depression. This finding highlights again whether the study sample represents the country's general profile. It should be questioned how the sample was selected or if the sample represents the whole country in order to be able to generalize these findings. Otherwise, these findings can be generalized to the region in which the study was carried out.

Given the dynamic demographic features of Turkey, it is necessary to perform multi-center epidemiological studies. All the studies in this field were cross-sectional reports of prevalence only. To detect the incidence rates of these diseases, longitudinal studies or studies reporting the temporal trends are necessary. Follow-up studies may shed light on the risk factors and biology of depression. Other important topics in the elderly, such as grief, anxiety, somatization and delirium, seem to be potential areas for epidemiological studies in the future.

DISCUSSION

The provision of adequate services and active programs for psychiatric disorders in order to determine the prevalence, demographic characteristics, and risk factors are required (Öztürk and Uluşahin 2008). Psychiatric epidemiology of psychiatric disorders in recent years has provided important information about what is occurring (Insel and Fenton 2005). Analytical research contributes to the important for the etiology psychiatric disorders. And also provides for testing different theories (Kesler 2007, Polat and Tiemieier 2005).

The history of epidemiological research on psychiatric disorders in Turkey is approximately a century long (Küey et al. 1987). This scientific heritage offers a sufficient infrastructure for epidemiological research. Our review points to a current stagnation in psychiatric epidemiology; there was not a systematic improvement in the 2000s. First, despite the growing number of facilities, compared to the previous ten years, the number of high quality studies was lower. Secondly, compared to previous years, there has been devolution in the scope of the research methods.

Table 6 presents the positive and negative features of the current status of psychiatric epidemiology in Turkey. Despite the ever-increasing and diversifying epidemiology research in international scientific field (Kessler 2000, Kessler 2007), studies in the 2000s in Turkey have not moved beyond the descriptive methodology. Analytic studies providing risk factors or protective properties, novel data for health policies, and studies of community mental health research were very few.

Mental disorders are the most important cause of disability both worldwide and in our country (Ministry of Health 2006, Murray et al. 2012). Five of the top ten diseases that cause severe disability are psychiatric disorders, including depression, schizophrenia, bipolar disorder, problems related to alcohol, and OCD (Vos et al. 2012). The proposed main reasons for the higher burden of psychiatric disorders are the chronicity of mental problems as well as the high transition in social and demographic features such as urbanicity and income inequality (WHO 2011). Despite ongoing social and demographic changes of the country over the last half-century, there is no research that evaluates the impact such changes has had on individual and social costs in Turkey. The Mental Health Profile

Table 6. Current status of psychiatric epidemiology in Turkey

Negative Features	Positive Features
Almost all studies were cross-sectional and descriptive	Studies of trauma related to natural disasters were increasing and conducted immediately
Studies were far from forming a systematic knowledge on psychiatric epidemiology in Turkey; primary goal was academic progress	There were new epidemiological studies of psychotic disorders, dementia, and eating disorders
Studies exploring risk and protective factors, and disorder outcome were very limited	There were efforts to repeat epidemiological studies of alcohol and substance related disorders
Incidence rates of most of the psychiatric disorders are still unknown	There were epidemiological studies of dissociative disorders which drew interest in the international arena
Mental health profile of Turkey study (1998) still remains the only study with a sample representing the whole country	Although few in number, there were multicenter studies and studies applying novel techniques (e.g. gene-environment interaction)
No studies exploring the rapid change in population and demographic parameters (e.g. migration, urbanicity, age groups)	Prevalence estimates of common mental disorders (e.g. depressive disorders) were repeated in different populations
No studies providing output for health policy and public mental health	
No case-control, follow-up and cohort studies	
Studies based on registries were very limited	
Studies using self-report questionnaires were not reinforced with clinical reappraisal	

Research of Turkey, which was one of the most important studies in the history of psychiatric epidemiology in Turkey, has not been repeated despite the elapsed time since this study.

Depression is quite common in nearly every age group and is an important cause of disability (Ustun et al. 2004). Despite the importance of depression, the number of new and qualified research studies has remained very limited in the 2000s in Turkey. Depression research has been the pioneer of psychiatric epidemiology for a long time (Küey and Cimilli 2007). In the studies of last decade, small sample sizes and self-report scales were preferred instead of large community-based and clinically evaluated studies. This shift has caused the number of qualified research studies to remain very limited.

There were a very small number of studies for anxiety disorders and the generalizability of their results is very limited due to sampling preferences.

In recent years, there has been a positive progression in field surveys for the epidemiology of schizophrenia and psychotic disorder. However, more research is needed on migration, urbanization, ethnic discrimination, the first episode of psychosis, childhood trauma, and abuse of alcohol and other drugs (Binbay et al. 2010). In the proceeding years, the underlying mechanisms of these risk factors are the main candidates for the main focus in psychosis research (Akvardar et al. 2004, Ucok and Bikmaz 2007, Alptekin et al. 2009). Also, psychotic-like experiences present an opportunity for original contributions to the field (Binbay et al.2010).

Psychiatric problems related to trauma constitute the main source of original contributions from Turkey to national and international scientific research. Although recent studies have mostly focused on earthquake trauma, the emergence of studies related to other natural or human-made traumas is a progression to investigate different traumas (Aker 2006, Bozkurt et al. 2011, Eşsizoğlu et al. 2009). However, the usage of self-report questionnaires of scale and dominancy of cross-sectional studies rather than follow-up studies are the main limitations in trauma studies.

In Turkey, the number of epidemiological studies on conversion disorder and dissociative disorders is also quite limited. More research is needed, particularly among certain population groups such as rural, slum area, immigrants, and ethnic subgroups. Furthermore, novel studies might also cover the diagnostic reliability of those categories. Cause studies from more experienced centers would yield higher estimates than centers with less experience on dissociative and conversion disorders (Sar 2011).

A general population study of personality disorders would have major importance. Although sufficient epidemiology research can be realized, cultural and social relations and their results may provide short-term results. Therefore, primarily in the field of epidemiological research of PD, the indirect effects of these disorders (e.g., hospitalization, self-injury attempts, alcohol and substance abuse, academic failure, traffic accidents, criminal cases, etc.) may be evaluated.

Age-related cognitive deficits and dementia became a hot research topic in recent years. In the near future, these can be accompanied by other psychiatric disorders such as anxiety disorders, grief, and delirium. As the aging population increases substantially in Turkey, epidemiological studies in the elderly are particularly important in terms of defining prevalence and health policies.

Although alcohol use is not very prevalent in Turkey, it should be noted that the age of onset of alcohol use has decreased and the prevalence of alcohol use in young women has increased (Akvardar 2005). Longitudinal studies in different groups are essential in this field, which is affected by social changes.

There are several arguments that support that psychiatric epidemiology in Turkey, except some areas of research, have remained stationary. General limitations in research settings in Turkey affect psychiatric research in general and, subsequently,

psychiatric epidemiological research (Özcan 2007). Research in this field has not been done to obtain information for healthcare services or to detect the prevalence and risk factors of disorders. Rather, these studies are done mainly for different academic needs (e.g. for academic career). The criteria to achieve and academic qualifications needed have been changed greatly when compared to the 1990s, requiring more published articles. This increase in published papers, however, has not been accompanied by an increase in epidemiological studies, which are time consuming and require more effort.

Studies which are easy to design with small sample sizes and have limited contributions to psychiatry (such as those exploring the demographics of emergency room patients) can be published in local journals that are indexed internationally. This may contribute to not preferring to do larger epidemiological studies that might require more effort. Moreover, it seems that epidemiological studies reported in congresses are not published due to the drawbacks during the writing process.

Another result of the structure and operation of academic institutions (far from supporting scientific curiosity and increasing the quality of research, but rather prioritizing quantity) is that the majority of published research papers are intensified in certain research areas and institutions. As a result, many psychiatric disorders requiring clinical diagnosis have not been explored, although there are an excessive number of studies using self-report instruments. Even the major psychiatric disorders (e.g. depressive disorder) have been evaluated with self-report tools rather than diagnostic criteria. Although self-report screening studies provide important information about mental health problems, reported prevalence estimates tend to be higher than estimates reported by studies with clinical reappraisals (Prince 2003).

The atmosphere of the academic and scientific era in Turkey leads to medical projects that are short-term and sourced by a personal interest rather than institutional systematic efforts (Günal 2012). The most important consequence of this condition is that the studies that can contribute to the international scientific literature are rarely studied. Some topics that are important for the Turkish population and are also important scientifically (such as natural disasters, immigration and social conflicts) are not explored consistently.

Studies exploring causality (longitudinal cohort studies, genetic epidemiological studies) are limited. Providing prevalence estimates of the general population requires a large amount of resources and manpower. All these requirements indicate that the governmental support for psychiatric epidemiological studies is inevitable. However, Turkey has no public mental health policy. Carrying out multi-center studies with large sample sizes, providing adequate training in epidemiology, promoting doctorate programs in epidemiology, and planning partnerships with epidemiologists in terms of training and research may help to overcome these shortcomings in the field by using the limited resources more effectively.

Still, the shortfalls mentioned in the current review cannot explain the overall situation in Turkey because psychiatric epidemiology includes other important topics such as the organization of mental health service, frequencies of mental health problems, and political and economic developments and their reflection on mental health issues. These cannot be studied within the classical research settings. It is also an important gap in the field that how changes in mental health services affect mental health in society has not been studied.

However, there have been some epidemiological studies carried out in high blood pressure, diabetes, and obesity and their results were made known to the public and even resulted in some changes in health services (e.g. decreasing the amount of salt in food services or increasing the number of obesity clinics) (Bagriacik et al. 2009, Onat et al. 2001, Satman et al. 2002). Studies on psychiatric epidemiology, however, are not known publicly and have no effect on mental health services. Upcoming studies should aim to contribute to public health and health services more actively.

CONCLUSION

In contrast to the general trend in research in Turkey, psychiatric epidemiology fell behind the improvements of the 2000s. Psychiatric research in Turkey is still far from providing unique contributions on locally important topics such as natural disasters and conversion disorders. In the near future, study designs including cohort, case-control studies, or studies on gene-environment interaction, and topics such as the effects of natural disasters, problems related to society, rapid urbanization, and immigration on psychiatry may be important contributions to the current literature.

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