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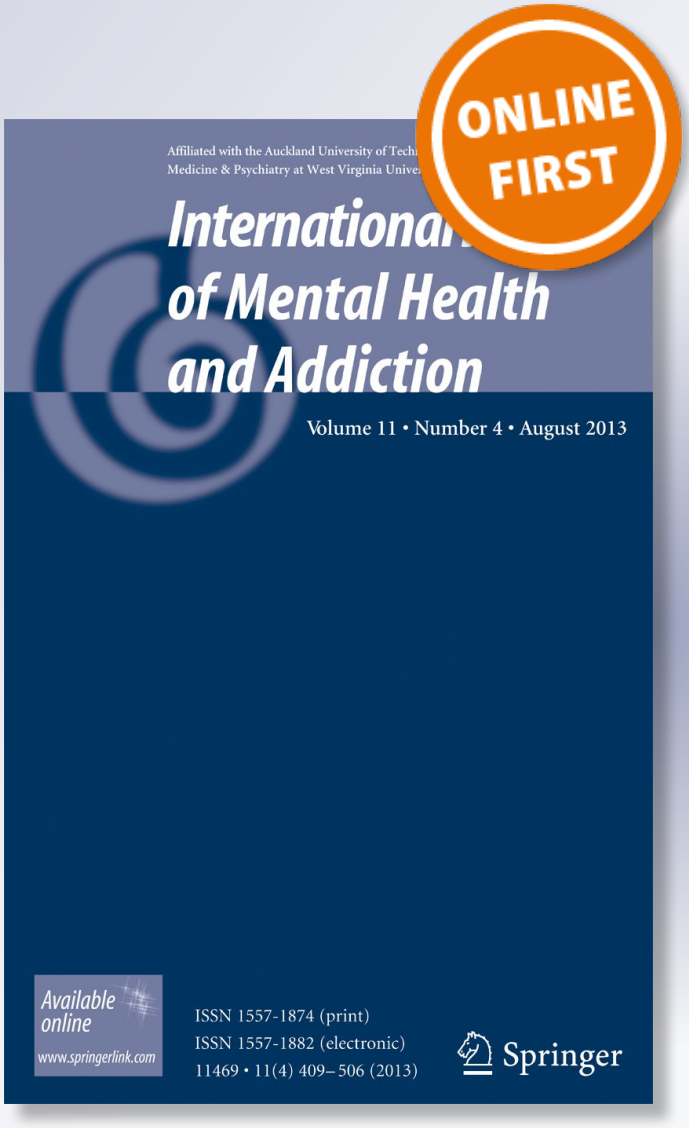

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ORIGINAL ARTICLE

Prevalence, Predictors, and Diagnostic Dilemmas: State of Bipolar Disorder in Post-Secondary Students in WHO EMRO

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Abstract

Our review examines the rates, risks, and diagnostic challenges of bipolar disorder among college and university youth in WHO Eastern Mediterranean Region. WHO reports 75% of people living in the developing world with a mental illness receive no treatment or care. Bipolar disorder, a heritable mood condition, is often confused with major depression and schizophrenia, leading to delay in treatment. Accurate diagnosis depends on observable signs and symptoms rather than specialized blood tests or imaging. Bipolar disorder is associated with significant disability, and suicide is an extreme outcome. We apply Arksey and O'Malley's (2005) five-stage scoping review to search the literature from WHO EMRO countries, and collate, chart, summarize, and report the findings. Our findings underscore that early screening and timely recognition—through the use of standardized screening and diagnostic instruments in national languages and improved clinical judgment—can facilitate accurate clinical diagnosis of bipolar disorder in this age group.

Keywords Bipolar Disorder · WHO EMRO · Diagnosis · Youth · Students · Risk factors

Mental illness encompasses an array of conditions, the common (e.g., depression and anxiety), the severe, and compromising daily functioning (such as schizophrenia and bipolar disorder), and those that are primarily based in alcohol or substance abuse (World Health Organization [WHO] 2011a). Mood disorders or affective disorders can be described as a group of mental illnesses that exhibit patterns of elevation or lowering of a person's mood affecting the physical

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and mental health of individuals, and their social health such as behavior and relationships with others (Canadian Mental Health Association 2018). A leading cause of disability in all regions of the world, mood disorders can severely disrupt day to day functioning of people (World Health Organization 2011a). Despite well-established connections between mental health and its determinants, mental healthcare in many countries does not receive the level of attention, the level of commitment, and essential resources the burden of mental illness warrants. Studies from countries in the EMRO region such as Saudi Arabia, Egypt, Iran, United Arab Emirates, and Pakistan indicate high rates of depression and anxiety among college and university students studying law, medicine, nursing, and other programs (Abdallah & Gabr 2014; Abdulghani et al. 2011; Amr et al. 2011; Carter et al. 2003; El-Gilany et al. 2008; Jadoon et al. 2010; Jolfaei et al. 2014; Saleem et al. 2013). Knowledge of regional risk factors, challenges in detection, accurate diagnosis, and provision of effective treatment of mental illness in college and university students is essential to prevent unfavorable short-term and long-term outcomes. The purpose of our literature review is to have a good understanding of the extent of the literature on rates, risk factors, and diagnosis of bipolar disorder in post-secondary students in World Health Organization Eastern Mediterranean Regional Office (WHO EMRO) countries.

To the best of our knowledge, no prior scoping review has been conducted on the specifics of bipolar disorder in youth residing in WHO EMRO countries in light of geopolitical and social-cultural milieu. Our objectives were (1) to assess the current state of bipolar disorder in post-secondary students, (2) to identify the risk factors that predict bipolar disorder, (3) to examine the challenges in diagnosis of bipolar disorder, (4) to collate and summarize the range, depth, and nature of the literature, and (5) to contribute to existing knowledge in this field.

Mental Health in WHO EMRO: Predictors and Challenges

The World Health Organization Eastern Mediterranean Region is a diverse region shaped by a spectrum of globalization and socio-economic development. It is also a culturally rich region that has sustained many rapid changes due to geopolitical shifts, evolving demographics, conflict, political instability, and rapidly changing health status of populations (World Health Organization 2012). For a deeper understanding of health and mental health status of populations across Eastern Mediterranean Region (WHO EMRO), the countries have been categorized into three groups based on the gross national income (GNI) per capita income. The first category of low-income countries (average GNI per capita $523) includes Afghanistan, Djibouti, Yemen, and Somalia. The second group of middle-income countries includes Islamic Republic of Iran, Iraq, Pakistan, Jordan, Lebanon, Palestine, Syria, Libya, Morocco, Tunisia, Egypt, and Sudan. The six high-income countries with an average GNI per capita income $39,688 consist of Bahrain, United Arab Emirates, Qatar, Kuwait, Kingdom of Saudi Arabia, and Oman. We must also take note that the region is considered host to some of the world's biggest emergencies, where the largest number of people is affected by political conflicts, natural disasters, and human displacements and in need of humanitarian aid (WHO EMRO 2017). Constant exposure to humanitarian emergency in the region places them at further risk of mental health problems (World Health Organization 2011a).

Using the Global Burden of Disease data from 1990 to 2013, Charara and colleagues examined the burden of mental illness in WHO EMRO and found mental illness leading all causes of burden of disease (Charara et al. 2017). A sharp rise in depressive and anxiety

disorders in adolescents, highest rates of bipolar disorder in 25–34 years old age group, and a higher total burden of mental illness for all age groups in females were also reported (Charara et al. 2017). The most salient risk factors determined for mental health disorders in WHO EMRO were unemployment and poverty, conflict and insecurity, immigration and displacement, chronic illnesses and drug abuse, and violence and discrimination (WHO EMRO 2017). Several WHO EMRO studies show young women experience greater stress and worse mental health than young men for most mental disorders (Ahmadi et al. 2001; Alansari 2006; Niaz et al. 2003; World Health Organization 2011c).

In terms of availability of treatment and care for mental health, WHO global report states that less than 10% in need of mental health treatment actually receive the required care (Demyttenaere et al. 2004; World Health Organization 2011a). The overall lack of resources and capacities to deliver evidence-based cost-effective interventions account for huge treatment gaps in mental healthcare between countries and regions of the world (WHO EMRO 2017). Furthermore, 40% of low- and middle-income countries do not have a mental health legislation, or a mental health policy, or the existing legislature fails to address vulnerable populations most in need of mental healthcare such as children, youth, or those affected by adversities such as war, conflict, disasters, and human displacements (World Health Organization 2011a, 2018; World Health Organization and United Nations Higher Commissioner for Refugees 2015).

Mental Health in Post-secondary Students in WHO EMRO and Other Regions

An increasing number of young persons in the today's world are experiencing distress, anxiety, depression, and other mental health problems (World Health Organization 2011b). Suicide—an infrequent but extreme outcome for mental illness—is the second leading cause of death among 15–29-year-olds (World Health Organization 2011a; 2018). The role social-environmental conditions play in determining mental health draws attention to variation in rates of specific mental health problems across groups in countries or regions around the world (Khanlou & Khan 2018). For example, suicide rates among Indigenous youth in Canada are significantly higher (5–6 times) than the non-aboriginal youth (Health Canada 2012). Indigenous youth and children often live in remote areas with their families and have limited or no access to healthcare, education, and basic social services (United Nation 2005). The physical and mental transitioning from youth to adulthood, and the additional burden of academic, financial, and social demands that college and university environments place on them puts additional stress on them (Jadoon et al. 2010), and good mental health is often an overlooked component of youth well-being on campuses. Considering the extensive time spent on social media and internet, the effects of these new forms of social connections and online bullying on youth mental health require further and longitudinal research (Khanlou & Khan 2018).

Several studies from Nepal, India, Egypt, Saudi Arabia, and the UK have reported higher prevalence of anxiety and depression among post-secondary students, who also exhibited high levels of stress (Bazmi Inam 2007; Ibrahim & Abdelreheem 2015; Sidana et al. 2012; Quince et al. 2012; Hysenbegasi et al. 2005). Lower school achievement, failure to finish schooling, maladjustments in life, and failure to marry and find a job are some risk factors associated with poor mental health in students (American College Health Association 2016; Castillo & Schwartz 2013; Hysenbegasi et al. 2005; Liu et al. 2017; Macaskill 2013; Stallman 2010;

Wahed & Hassan 2017; World Health Organization 2011a). The mental health challenges encountered on campus by students include academic stressors, obtaining academic accommodations for invisible disabilities, stigma from peers, professors and administrative staff, financial barriers, access to financial services and concessions, and lack of mental health support services (Canadian Alliance of Student Associations 2018; Versaevel 2014). Increase in level of and severity of anxiety, depression, and other mental illnesses has societal and economic implications and hindered academic accomplishments of youth. The lack of resources to meet post-secondary students' mental health needs is a growing concern on campuses. Secondly, despite the wealth of research on depression and anxiety among college and university students, little focus has been given to bipolar disorder, an important mental illness notable for its chronicity and severity, and often remains undiagnosed or misdiagnosed as depression in its early stages.

Bipolar Disorder

Anxiety and depression are the more common types of mental disorders among youth. Of lesser prevalence but with greater severity and chronicity is bipolar disorder, a mental illness, that impairs occupational functioning and can lead to premature mortality through suicide (Centre for Addiction and Mental Health 2012). Bipolar disorder is characterized by severe depression alternating with periods of mania, a state in which individuals present with feeling of all-powerful, hyperactivity, exaggerated self-esteem, poor judgment, and sometimes delusions and hallucinations, or hypomania (Centre for Addiction and Mental Health 2012). Grief and acute distress are temporary natural emotional responses to extreme adversity and hardships affecting people, though in a minority of vulnerable people extreme, adversity may trigger symptoms of anxiety or depression or aggravate a pre-existing mental condition, such as bipolar disorder, and post-traumatic disorder (Lund et al. 2011; World Health Organization and United Nations High Commissioner for Refugees 2015).

The average age of onset bipolar disorder is late adolescence and early adulthood (Merikangas et al. 2011); any interferences during this life stage can impact many spheres of young person's development inclusive of distress and disability, impairment in social, occupational, and educational functioning, and reducing productivity in life (World Health Organization 2011a, 2018). Despite the benefits of early detection and treatment, an accurate diagnosis of bipolar disorder in young people is often a diagnostic challenge for the health professionals. Given in young people when most mental illnesses begin, symptoms of bipolar disorder are less defined, for example, mania or hypomania as manifested in adults are not clear; thus, bipolar disorder in young people is often unrecognized or misdiagnosed as major depression (Samalin et al. 2016; Perlis 2005). It is not uncommon for people with bipolar disorder to present for treatment of depression, and not report mania or hypomania, particularly when little impairment is experienced, or it may be masked by improved functioning associated with mania (Samalin et al. 2016). The underdiagnosis or misdiagnosis leads to bipolar being treated inappropriately or ineffectively resulting in poor health outcomes (McCraw et al. 2014; Singh 2008).

Bipolar disorder has a global lifetime prevalence of 0.5 to 2.2% (Ferrari et al. 2016; Dell'Aglio Jr et al. 2013; Schaffer et al. 2006), yet it bears significant burden of disability (Ferrari et al. 2016) and economic consequences for the individual, families, caregivers, and society as a whole (Kleinman et al. 2003; Stimmel 2004; World Health Organization 2011a,

2018). The global rates of years lived with disability [YLDs] (a measurement of the burden of disease) for bipolar disorder are similar to asthma and Alzheimer's disease (Ferrari et al. 2016). Bipolar disorder is a familial condition, that is, it tends to run in families, and people with bipolar disorder also have a higher rate of psychiatric and medical comorbidity (Barnett & Smoller 2009; Krishnan 2005). Outcome is poor when symptoms appear at an early age, the course of the illness is more severe, and treatment compliance is poor. People with bipolar disorder have a higher risk of substance abuse (25–50%), attempted suicide, and twofold higher mortality rate than the general population (Crump et al. 2013; Hawton et al. 2005; Jamison 2000; Roshanaei-Moghaddam & Katon 2009).

Over the years, divergent findings on factors that influence functioning in bipolar disorder have been reported. Earlier studies show high socio-economic status to be linked to diagnosis of bipolar disorder (Verdoux & Bourgeois 1995); however, recent studies establish an inverse relationship—people with bipolar disorder tend to have a lower socio-economic status (Issudeen & Saji 2018; Schoeyen et al. 2011). Issudeen & Saji (2018) report a significant association between socio-demographic determinants and increase in severity and frequency of episodes of depression and mania in bipolar disorder. The most notable of these were female gender, single marital status, primary level education, unemployed, and belonging to age group 18–34 years, a history of childhood trauma, and a family history of bipolar disorder (Issudeen & Saji 2018). There is robust evidence that bipolar disorder tends to run in families (Barnett & Smoller 2009; McGuffin et al. 2003). The Heinz C. Prechter Longitudinal Study was conducted to identify and characterize the mechanisms underlying bipolar disorder also reported similar findings (McInnis et al. 2018). Several lines of evidence support that the offspring of parents with mental health problems—for example, paternal substance use, maternal depression, and family conflicts—are at higher risk of developing new and additional mental illnesses (Chen et al. 2014; Diler et al. 2011; Issudeen & Saji 2018; McInnis et al. 2018). These studies also underscore the significance of prevalence of bipolar disorder in university/college students, in those 18–28 years of age, and those with a history of childhood adversity. A high unmet need in mental health, lack of attention to bipolar disorder, lack of allocated resources, and supports and services on campus and off campus for university/college students globally and in EMRO have become a growing concern. The region is rife with political shifts and human displacements, the early detection of mental illness, provision of mental healthcare, and timely access to supports and services are absolutely critical to promote and sustain good mental health of young people and prevent onset of mental illness and loss of functional ability.

Methods

We applied Arksey and O'Malley's (2005) five-stage framework to conduct a scoping review that examines the state of bipolar disorder in youth in post-secondary institutions. We draw on peer-reviewed studies from three databases covering medicine, psychology, sociology, and other disciplines; in addition, rigorous hand searches from relevant reference lists were conducted to refine our search. Our search focussed risk factors and diagnostic challenges of bipolar disorder in countries in the Eastern Mediterranean Region Office of World Health Organization. Arksey and O'Malley's (2005) scoping review framework entails five steps: (1) identifying the research question, (2) identifying

relevant studies, (3) selecting studies, (4) extracting and charting the data, and (5) collating, summarizing, and reporting the results.

Search Strategy

Following face-to-face consultation with the Faculty of Health Librarian at York University, a search strategy composed of search criteria, combination of search terms, and databases was initiated to maximize and yield relevant quality articles.

Step One: Identifying the Research Question Our research question was, "What does current research inform us about the state of bipolar disorder (prevalence, risk factors, and diagnostic challenges) in youth enrolled in post-secondary institutions in WHO Eastern Mediterranean region."

Step Two: Identifying Relevant Studies Exclusion and inclusion criteria were defined. Studies were included if they were peer-reviewed, with varying study designs, including reviews, retrospective, prospective, cohort, epidemiological survey, and experimental, were deemed eligible for the review, published between January 2000 and December 2017, focussed on prevalence, predictors, risk factors, and diagnosis of bipolar disorder, youth from age 12 to 29 years, and from WHO Eastern Mediterranean region (Afghanistan, Bahrain, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Sudan, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen, and the occupied Palestinian territory [West Bank and Gaza Strip]). The following databases were searched: PubMed, Psych INFO, JSTOR, Web of Science, and EBSCO (CINHAL). The search terms bipolar disorder/bipolar spectrum disorder/bipolar depression/manic depression/mania and youth/adolescence/adolescent/teens/teenager/student were used with Boolean operators "OR" and "AND" for all countries included in WHO EMRO. Gray literature, thesis, and conference proceedings were excluded, and studies not meeting the age and region criteria were excluded. No restriction was made on language of study.

Step 3: Selecting Studies Title and abstracts of studies identified in initial search were reviewed to assess if they met the inclusion and exclusion criteria. After duplicates were removed, articles were excluded if they "specifically" discussed children (birth to 12 years), adults (above 30 years), mental illness, and mood disorders other than bipolar disorder. Studies were included that recruited or discussed people that were 18 to 29 years. Since the "age range" for participating adolescent and youth in the reviewed studies varied, and to ensure youth in the 18–29 age group were well represented, we included any study if the lower age cutoff for participants fell below 18 years or if the upper age cutoff exceeded beyond 29 years. Where studies examined or discussed other mental illness alongside bipolar or in relation to bipolar disorder, they were included in the review. Eligible studies were also handpicked from reference lists of relevant studies. Articles that discussed treatment and therapies for bipolar disorder, neurological/biological aspects of bipolar disorder, or focussed on incarcerated youth were excluded.

Step 4: Extracting and Charting the Data After removal of duplicates and abstract review, 18 studies warranted detailed review. Nine studies [English (5), Persian (3), and French (1)] met the eligibility criteria for the scoping review. Relevant characteristics were extracted from

the selected studies and charted on an Excel file, and these included study location, design, description of sample, study purpose, screening measures/scales used, independent variables and outcome, important findings, and the study conclusion.

Step 5: Collating, Summarizing, and Reporting the Results Each study was thoroughly analyzed and compared with other studies for similarities and differences, consistency in reporting, endorsing previous research findings, and emerging themes pertaining to risk factors, prevalence rates, screening, and diagnosis of bipolar disorder in post-secondary students. The summary of the findings is being reported.

Results

General Characteristics

Our initial search of empirical studies from WHO's Eastern Mediterranean Region resulted in retrieval of 260 studies. After title and abstract review and removal of duplicates and studies that did not fulfill the selection criteria, a total of nine studies were selected for the review (see Table 1). Five of the nine studies were published in the English language, three in Farsi, and one in French. The selected studies were from Tunisia, Oman, and seven were from the Islamic Republic of Iran. Three of the studies were reviews (Shabani 2009; Shirazi et al. 2014; Shirazi & Shahrivar 2009), one was a prospective study (Habibi et al. 2012), another was a historical cohort study (Shakibaei et al. 2017), and four were cross-sectional studies (Amiri et al. 2014; Jaju et al. 2009; Othman et al. 2005; Jolfaei et al. 2014). The sample size for the primary studies ranged from 107 (Amiri et al. 2014) to 1836 (Jaju et al. 2009) participants and included parent-youth dyad (Amiri et al. 2014), medical students (Jolfaei et al. 2014), and youth admitted in the hospital diagnosed with bipolar disorder (Habibi et al. 2012) (Fig. 1).

Study Focus and Screening Instruments

Three studies determined the prevalence rates of bipolar disorder: one study also examined age-of-onset of bipolar disorder (Jaju et al. 2009), and another evaluated prevalence rate of parental psychopathology in youth diagnosed with bipolar disorder (Amiri et al. 2014). Among the studies that examined diagnostic challenges of bipolar disorder, two focussed on the clinical diagnostic stability and role of psychiatric scales (e.g., SADS, DSM IV) (Othman et al. 2005; Shirazi &Shahrivar 2009) and a review examined false negative and positive diagnosis rates in primary studies. Shakibaei et al. (2017) evaluated recovery from major depression and changing of diagnosis of major depression to bipolar disorder after 6 years. Researchers used English, Arabic, and Farsi versions of psychiatric scales and instruments to diagnose or measure bipolar disorder, and the most frequently used was the Schedule for Affective Disorders and Schizophrenia Version (SADS) and Structured Clinical Interview for DSM-IV Axis I Disorders (SCID) (Amiri et al. 2014; Habibi et al. 2012; Othman et al. 2005). Jaju et al. (2009) determined the prevalence, age-of-onset, and severity of psychiatric disorders in Oman and used the Arab version of World Mental Health Composite International Diagnostic Interview (WMH-CIDI), instrument used for international comparisons, and the student health was assessed using General Health Questionnaire (GHQ-12) and Child Depression Anxiety (CDI). The DSMIV criterion used in Othman and colleagues (2005) study was

Table 1 Prevalence, predictors, and diagnostic dilemmas: state of bipolar disorder in post-secondary students in WHO EMRO

	Study	Location	Study design	Sample characteristics	Study purpose	Measures/scales	Variables and outcome	Findings	Conclusion
1	Amiri et al. 2014	Iran	Cross-sectional	107 adolescents age 14–19 years with parent pairs	To evaluate parental psycho-pathology of adolescents with bipolar I disorder	Farsi version of K-SADS-PL (SCID-IV)	Level of education, place of residence (rural, urban) Outcomes: Mood disorder, anxiety disorder, substance dependence etc.	25% mothers and 33% fathers had at least one psychiatric disorder	MDD more in mothers Substance problems more in fathers
2	Jaju et al. 2009	Oman	Cross-sectional-epidemiological survey	1836 adolescents Age 14–23 years (3 cohorts)	Prevalence and age-of-onset of DSM IV mental disorders	GHQ-12 CDI Arab version of WMH-CIDI	School grades (1, 2,3), stream of study(arts, science), region, health service utilization Outcome: Anxiety disorders, mood disorders, impulse control disorders	Prevalence of BMD 1% MDD 3%	Mood disorder was 70% lower in 14–16 age group Female strongly predicted MDD Mental disorders begin early in life
3	Othman et al. 2005	Tunisia	Retrospective, descriptive, clinical study	From 1996 to 2001, 470 adolescents. Mean age 15.8 years. 50 (28 girls and 22 boys) diagnosed with BMD	To explore difficulty in making accurate diagnosis of bipolar mood disorder	DSM IV criteria WASH-U-SADS	School level, marital status of parents, general and specific clinical features, diagnosis, therapeutic modalities	Familial hx of mental disorder in 40%. 44% had hx of mild depressive episodes. 94% diagnosed with bipolar I and 6% with bipolar II	Confirms: two separate phenotypes. In younger persons early-onset more depressive type and atypical type
4	Jolfaei et al. 2014	Iran	Cross-sectional	All medical students at Tehran University Median age 22 years	Prevalence of bipolar mood disorder among medical students	MDQ, BSDS, SCID-I	Marital status, dwelling place (dormitory, home), substance abuse, marks average	Using MDQ and BSDS 36 (6%) had positive screen. Using only SCID-I 27(4.5%)	Overall prevalence of bipolar disorder in medical students is 4.5%, much higher than other studies

Table 1 (continued)

	Study	Location	Study design	Sample characteristics	Study purpose	Measures/scales	Variables and outcome	Findings	Conclusion
								were diagnosed with BMDs	
5	Shirazi et al. 2014	Iran	Review	English and Persian data, Medline, PsycINFO, Scopus, and DSM databases for English and SID for Persian resources were searched and reviewed until summer of 2013	Defining bipolar disorder in children, shortcomings of DSM-IV criteria			Common, symptom, irritability and elated mood. 73.2% had at least one comorbid disorder. Most common comorbid disorder was ADHD (44.2%). Diagnostic stability in all periods of illness was higher than 80%.	DMDD subgroup of BD and rather an independent diagnosis in the mood disorder section. DSM editors need to be flexible enough to make necessary revisions encountering further new findings
6	Habibi et al. 2012	Iran	Prospective study	257 children and youth with bipolar disorder admitted to a hospital	Clinical characteristics and diagnostic stability of children and adolescents with bipolar disorder	K-SADS-PL, for the patients under 18, (SADS) for patients older than 18. Severity of the symptoms in the acute	Demographic characteristics, diagnosis, treatment, comorbid disorders, and mood and psychotic symptoms	Clinical presentation of BPD in children. Comorbidity with other disorders. Atypical presentation—common clinical picture of BPD symptoms, longitudinal course, and continuity to adulthood poorly understood. Proposed three clinical phenotypes for childhood	High diagnostic stability of bipolar disorder in both children and adolescents.
7	Shirazi & Shahrivar 2009	Iran	Review	Review of studies until 2012 from English and Persian databases	Diagnostic Debates of Childhood Bipolar Disorder and DSM Role			Diagnostic value of irritability depends on its severity/episodic/non-episodic. Irritability-diagnostic and predictive value for bipolar disorder, only if being severe and episodic. In	Defining clinical phenotypes is important in planning the treatment/course and prognosis of the illness. The diagnostic subtyping higher

Table 1 (continued)

	Study	Location	Study design	Sample characteristics	Study purpose	Measures/scales	Variables and outcome	Findings	Conclusion
								DSM-5->called Disruptive Mood Dysregulation Disorder (DMDD)	validity if based on data from multiple sources
8	Shakibaei et al. 2017	Iran	Cross-sectional	278 youth age 11–16 years diagnosed with MDD in 2006, followed up after 6 years	To determine recovery, recurrence, and conversion rates		Gender, living space, treatment type Outcome: MDD, BMD, drug abuse, ODD, OCD, ADHD, anxiety disorder	After 6 years, 34.9% had depression, 12.2% had converted to BMD	Gender was significantly related to drug abuse and BMD. Long-term depression increased chronic and episodic depression
9	Shabani 2009	Iran	Review	Selective Review; Medline, and PsycLIT, SID (the Scientific Information Database of Iran in Farsi)	Diagnostic strategies to prevent under and over-diagnosing bipolar disorders			The rates of both false negative and positive diagnoses for bipolar disorders are remarkable. Although various diagnostic	

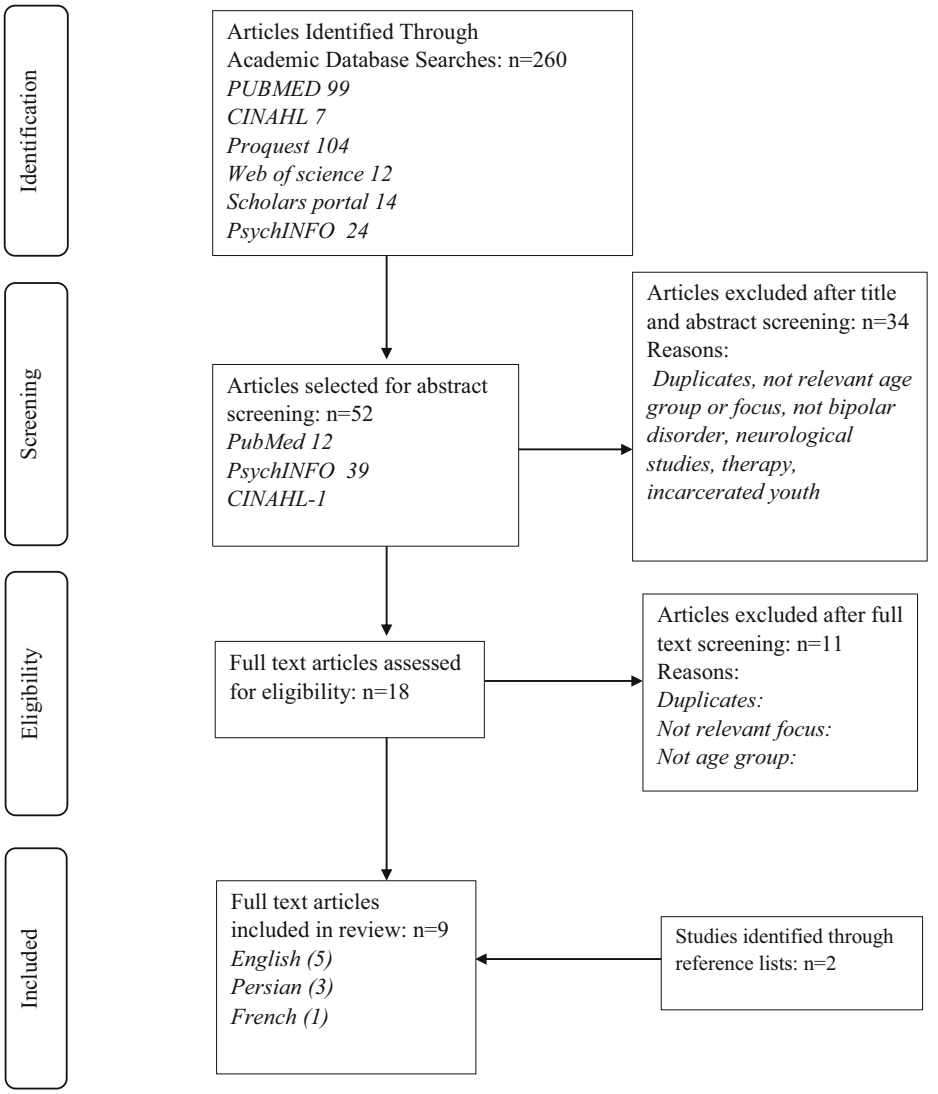

Fig. 1 Flow chart of study selection: Prevalence, predictors, and diagnostic dilemmas: state of bipolar disorder in post-secondary students in WHO EMRO

Washington University's version Schedule for Affective Disorders and Schizophrenia (WASH-U-SADS). To screen for bipolar disorder in medical students, Jolfaei et al. (2014) used the Persian version of Mood Disorder Questionnaire (P-MDQ), Persian and validated version of Bipolar Disorder Diagnostic Scale (P-BSDS), and the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I).

Gender and Age

Female gender strongly predicted lifetime risk of major depressive disorder and all mood disorder (inclusive of bipolar disorder) (Jaju et al. 2009; Shakibaei et al. 2017); however, the

severity of illness was consistently lower in females (Shakibaei et al. 2017) and significantly lower in 14–16 years age groups, in comparison to older age groups (Jaju et al. 2009). The studies endorsed earlier findings that mental disorders do begin earlier in life (Amiri et al. 2014; Jaju et al. 2009). Mood disorder was 30% higher in youth 18 years and over than those younger, and for those 16 years or less, atypical clinical presentation of bipolar was more common, and this likely delayed clinical diagnosis of bipolar disorder and the required treatment (Othman et al. 2005).

Linking Variables and Outcome

The selected articles examined the relationship of several variables to prevalence of bipolar disorder and frequency of episodes. Gender, region, living space, place of residence (rural/urban or dormitory/home), treatment type, health service utilization, clinical features, therapeutic modalities, substance abuse, level of education, average marks, school grades/marks/level, stream of study, marital status of parents, and marital status of self were some of the variables measured and analyzed in the studies. Amiri et al. (2014) examined the presence of anxiety disorder and substance abuse disorder in parents of youth with bipolar disorder. The presence of psychiatric comorbidity, such as mood disorder psychotic symptoms, and substance dependence was also sought.

Prevalence and Risk Factors

The prevalence rate of bipolar disorder ranged between 1 and 4.5% using the SCID-I and 6% using the MDQ and BSDS (Jaju et al. 2009; Jolfaei et al. 2014), though prevalence rate among medical students was much higher than studies on mainstream or other populations. Prevalence of bipolar disorder varied by phenotypes (for example, 6% for bipolar spectrum disorder and 4.5% for bipolar disorder) and type of scale used to screen for the condition (Jolfaei et al. 2014). Bipolar disorder I compared to the other phenotypes was the most common (94%) (Othman et al. 2005). Jaju et al. (2009) categorized respondents in their study based on the severity of their illness, and 57% of those youth with bipolar phenotypes (I, II, and sub-thresholds) were classified as serious. One study quantified the clinical presentation of bipolar disorder at the time of diagnosis, 48% presented as manic episode, 30% presented as major depression with psychotic features, and 14% presented as schizophreniform disorder (14%) (Othman et al. 2005). These studies highlight severity of symptoms of bipolar disorder and its associated burden of disability. The reviewed studies also support the connection between bipolar disorder and genetics, and the risk of depression in young people converting to bipolar disorder in adulthood. In one study, 40% of young people with bipolar disorder had a familial history of mental disorder; 18% had family history of psychosis, 16% had family history of bipolar disorder, 4% had family history of major depression, and 2% alcohol dependence (Othman et al. 2005). Amiri et al. (2014) report similar findings; 25% of mothers and 33% of fathers of adolescents with bipolar disorder had at least one psychiatric disorder; of these major depression, bipolar disorder and personality disorder were more prevalent. Substance use problems were more common among fathers of adolescents with bipolar disorder (Amiri et al. 2014).

Comorbidity

Habibi et al. (2012) found 73.2% of young people with bipolar disorder had at least one comorbid disorder, and the most common comorbid condition was attention deficit disorder (ADHD) in

42.2% of participants. Shirazi and Shahrivar (2009) and Shirazi et al. (2014) also report oppositional defiant disorder (ODD) and conduct disorder as comorbid conditions in young persons with bipolar disorder. Atypical presentation in children and adolescents such as severe non-episodic irritabilities can risk them being over-diagnosed (Shabani 2009; Shirazi & Shahrivar 2009). Shirazi and colleagues (Shirazi & Shahrivar 2009; Shirazi et al. 2014) argues that only severe and episodic irritability in children and adolescents can have diagnostic and predictive value for bipolar disorder, and that those experiencing severe non-episodic irritabilities should not be confused with bipolar disorder. In adolescence with major depression, a high possibility exists of these youth being diagnosed with bipolar disorder in late adulthood, that is, depression overtime changing into bipolar disorder. In Shakibaei et al.'s (2017) study, young people diagnosed with depression, when followed up 6 years later, 12.2% of them were found to meet the criteria of bipolar disorder. These findings underscore the importance of careful assessment of atypical symptoms in young persons and persistent treatment (with follow up) of young people diagnosed with depression.

Discussion

Our scoping review may have been one of the first of its kind in synthesizing the WHO EMRO based literature on bipolar disorder in post-secondary students. In addition, undertaking the Arksey and O'Malley (2005) five-stage approach facilitated a thorough, rigorous, transparent staged synthesis and method of analysis. The co-authors of this study, in addition to English, spoke Farsi and Urdu. Our scoping review synthesized the regional evidence on screening, diagnosis, prevalence, and risk factors of bipolar disorder among post-secondary students. The studies included in the review offer a glimpse of the variation in prevalence of bipolar disorder by student groups—a higher prevalence was found in medical, health professional student, and in female students (Jaju et al. 2009)—these findings are consistent with earlier studies from the region (Wahed & Hassan 2017; Ibrahim & Abdelreheem 2015; Issudeen & Saji 2018; McInnis et al. 2018; Soliman 2013). Post-secondary students are a special group of people in a critical life stage transitioning from adolescence to adulthood, which can be both exciting and stressful in their lives. It is important to identify the factors that lead to stress in young people, to avoid overlooking symptoms that help in recognition of mental illness, and to determine rates and risk factors of bipolar disorder. For the reason that these affect academic achievements at different points in student's life. On another note, evidence also suggests that high rates of mental health problems among university students are related to academic, social, and financial stress (Abdulghani et al. 2011). Previous studies show an increase in level of anxiety and depression can have negative effect on academic accomplishments and in addition it can have societal and economic implications (Hysenbegasi et al. 2005). The significant increase in depression, anxiety, and maladjustments seen in university students (Rubin 2008) places them at greater risk of not completing post-secondary education. The reviewed studies also examined the relationship of gender, living space, place of residence, level of education, average marks/school grades/marks/level, and marital status of parents to mental illness. However, the researchers did not find an independent effect of different variables on lifetime diagnosis of bipolar disorder, except for gender and age groups (Jaju et al. 2009; Othman et al. 2005; Shakibaei et al. 2017).

The current review revealed significant gender differences in terms of rates of bipolar disorder (Jaju et al. 2009; Shakibaei et al. 2017) and rates of self-reported stress (Jolfaei et al. 2014). This finding was consistent in medical, pharmaceutical students from universities across Middle East,

Asia, and the UK (Bazmi Inam 2007; Ibrahim & Abdelreheem 2015; Kumar et al. 2012; Sidana et al. 2012; Quince et al. 2012; Hysenbegasi et al. 2005). Studies from Saudi Arabia, Egypt, and other countries from the region suggest rise in anxiety and depression among post-secondary students that is more pronounced in female students (Bazmi Inam 2007; Jolfaei et al. 2014; Wahed & Hassan 2017; Ibrahim & Abdelreheem 2015; Soliman 2013) and medical and healthcare profession students (Abdallah & Gabr 2014; Amr et al. 2011; Jolfaei et al. 2014; Macauley et al. 2018). Female students tend to stress over high loads of curriculum, experience more anxiety and physical and emotional symptoms, more likely to report stress (Ibrahim & Abdelreheem 2015), and feel a greater sense of dysfunctionality (Saleem et al. 2013). In contrast, a review study from Egypt identified male gender as a risk factor for bipolar disorder (Liu et al. 2017).

Higher prevalence of bipolar disorder in those 18 years and older was reported (Jaju et al. 2009; Othman et al. 2005). Our findings align with previous studies that symptoms of bipolar disorder in children and adolescents are atypical and expressed as irritability. Thus, it may be difficult to categorize the symptoms as bipolar disorder; similarly, depression in adolescents may culminate to bipolar disorder in adulthood (Samalin et al. 2016; Perlis 2005). It is essential to carefully assess mood conditions in children and adolescence exhibiting atypical symptoms such as irritability and elated mood. Familial factors appear to be important in the onset of bipolar disorder (Oquendo et al. 2013). Research has shown that anxiety and depressive disorders and substance abuse disorders demonstrate familial aggregation in offspring, that is, the risk of developing bipolar disorder increases with internalization (depression) and externalization (substance abuse) (McInnis et al. 2018).

Limitations of the Scoping Review

Our review had several limitations; we were only able to review studies in English, French, and Farsi, and not those in other local languages. Although we did a rigorous search in relevant databases and with the consultation of the health librarian, we were limited by lack of access to regional and local databases that may not have been indexed with larger databases. Due to this shortcoming, we may not have captured all the studies in regional and local languages published in local journals. Maybe because we focussed on bipolar disorder, the scope of our review was specific to it. A future review with a wider scope may yield greater number of studies in this field.

Conclusion and Recommendations

Findings from our review support that early detection and timely intervention of bipolar disorder remain important in reducing risks and morbidity associated with ineffective treatment. In WHO EMRO countries, substantial research and scholarly work have been achieved on broader topics such as mental health, and depression, but empirical literature on specific mental illnesses (for example, bipolar disorder) and vulnerable populations (such as post-secondary students) appears to be very scarce. Considering that the EMRO region is experiencing a youth bulge, and given the geopolitical context, in which transition of youth to adulthood appears stalled or expedited, and the dearth of studies in this field on this age group, suggests that there is a key gap in our understanding of youth mental health, specifically the linkages between determinants of mental health with regard to bipolar disorder, and the lack of attention it demands on campuses.

Based on the paucity of representative studies from the region, we call for further research on bipolar disorder in post-secondary students on a broader scope including a gender focus. The reviewed studies endorse earlier research deducing early screening and timely recognition facilitates accurate clinical diagnosis of bipolar disorder, and timely initiation of treatment, and reduced severity and frequency of episodes, and prevention of impaired functioning. Uptake of practice measures such as use of standardized screening and diagnostic instruments in national languages, and improved clinical judgment, may help to improve diagnostic accuracy of bipolar disorder in this age group by differentiating; between depression and bipolar disorder; overlapping mental illnesses; and between clinical subtypes of bipolar disorder. Further undertaking qualitative research in student populations will deepen and enrich our understanding of bipolar disorder and further aid in providing timely care, and in provision of efficient and culturally appropriate supports, and services to transitioning youth and their families.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

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