Journal of Affective Disorders 263 (2020) 450–457

Contents lists available at ScienceDirect

Journal of Affective Disorders

journal homepage: www.elsevier.com/locate/jad

Research paper

Social anxiety disorder among children and adolescents: A nationwide survey of prevalence, socio-demographic characteristics, risk factors and co-morbidities

Mohammad Reza Mohammadi[a,*], Mona Salehi[a,*], Ali Khaleghi[a], Zahra Hooshyari[a], Seyed Ali Mostafavi[a], Nastaran Ahmadi[b], Seyed Kaveh Hojjat[c], Parvin Safavi[d], Man Amanat[e,**]

[a] Psychiatry and Psychology Research Center, Roozbeh Hospital, Tehran University of Medical Sciences, Tehran, Iran
[b] Yazd Cardiovascular Research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
[c] Addiction and Behavioral Sciences Research Center, North Khorasan University of Medical Sciences, Bojnurd, Iran
[d] Clinical Research Development Unit, Hajar Hospital, Shahrekord University of Medical Sciences, Shahrekord, Iran
[e] Faculty of Medicine, Students' Scientific Research Center, Tehran University of Medical Sciences, Tehran, Iran

A B S T R A C T

Background: Social anxiety disorder is a frequent psychiatric disorder. We aimed to estimate the life-time prevalence, socio-demographic characteristics, risk factors and co-morbidities of this condition among children and adolescents.

Methods: This was a cross sectional national survey conducted in Iranian individuals aged 6 to 18 years. Face-to-face household interviews were performed by trained clinical psychologists. The Farsi version of the kiddie schedule for affective disorders and schizophrenia for school-age children/present and lifetime version (K-SADS-PL) was administered to estimate the SAD prevalence. Parental personality traits and their psychopathologies were also obtained using Millon clinical multiaxial inventory, third edition (MCMI-III) to find the possible risk factors.

Results: From 29,878 participants, 585 individuals were diagnosed with SAD and weighted lifetime prevalence of 1.8% was observed. The odds of this condition was significantly higher among older adolescents (odds ratio (OR):1.47; 95% confidence interval(CI): 1.11-1.95) and individuals with paternal history of psychiatric hospitalization (OR: 2.96; 95%CI: 1.29-6.79). Higher means of persistent depression disorder (OR: 1.009; 95%CI: 1.000-1.018) and melancholic personality trait (OR: 1.007; 95%CI: 1.001-1.014) in mothers as well as schizophrenia spectrum (OR: 1.014; 95%CI: 1.001-1.027) and anxiety (OR: 1.010; 95%CI: 1.010-1.021) in fathers were statistically associated with higher odds of SAD in their children. Other anxiety disorders and behavioral disorders were the most prevalent co-morbidities.

Limitations: The cross-sectional analysis does not enable analyses of possible causal associations. Lacking control group and follow-up periods were other major limitations that should be resolved in future studies.

Conclusion: Clinicians and researchers need to continue studying this condition at all levels and in all developmental periods.

1. Introduction

Social anxiety disorder (SAD) also known as social phobia is a chronic mental disorder with an excessive fear in social settings and is characterized by a fear of negative evaluation from others (American Psychiatric Association (APA), 2013; Heimberg et al., 2014). This condition can significantly interfere with the relationships and life of individuals and result in other psychiatric events. SAD is associated with significant distress as well as impaired educational attainment and financial independence (Stein and Stein,2008).

SAD was found to be one of the most prevalent psychiatric disorders (Kessler et al., 1994; Weiller et al., 1996). This condition is more common among people of Western countries than Eastern ones (Wong et al., 2019). The difference can be due to the impact of cultural and ethnic factors. About 1% to 13% of children and adolescents were diagnosed with SAD (Canino et al., 2004; Bener et al., 2011; Abbo et al., 2013; Ranta et al., 2009; Essau et al., 1999; Tillfors et al., 2009; Farshidfar et al., 2019; Knappe et al., 2011; Canals et al., 2019). Some studies showed that females and older adolescents were at higher risk of SAD (Bener et al., 2011; Abbo et al., 2013) while others reported no significant differences regarding gender (Canino et al., 2004; Ranta et al., 2009; Essau et al., 1999; Farshidfar et al., 2019) and age (Tillfors et al., 2009). The discrepancies in results can be due to using different diagnostic criteria or different diagnostic thresholds along with dissimilar sampling methods (Knappe et al., 2011). Multiple studies showed that individuals with SAD were at higher risk of different psychiatric comorbidities. Other anxiety disorders including specific phobia (SP) and generalized anxiety disorder (GAD) were the most

* Corresponding authors at: Psychiatry and Psychology Research Center, Roozbeh Hospital, Tehran University of Medical Sciences, Tehran, Iran.
** Corresponding author at: Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran.
E-mail addresses: mohammadimr@tums.ac.ir (M.R. Mohammadi), monasalehi1911@gmail.com (M. Salehi), m-amanat@alumnus.tums.ac.ir (M. Amanat).

https://doi.org/10.1016/j.jad.2019.12.015
Received 23 September 2019; Received in revised form 6 December 2019; Accepted 8 December 2019
Available online 09 December 2019
0165-0327/

frequent co-morbid conditions (Canals et al., 2019). Mood disorders, oppositional defiant disorder (ODD), and substance use were also reported in people with SAD (Knappe et al., 2011).

Although SAD is a common debilitating mental condition, it is remained under-rated in the current literature. In this nationwide representative study, we aimed to estimate the life-time prevalence of SAD among Iranian children and adolescents. The socio-demographic characteristics of affected individuals, comorbidities, and the SAD risk factors based on parental psychological disorders and personality traits were also assessed. This data can be useful in both clinical aspects and making policies regarding mental health issues.

2. Methods

2.1. Study design and participants

This study was a subproject of Iranian children and adolescents psychiatric disorders (IRCAP) program. IRCAP was a cross-sectional nationwide survey carried out on pediatric population based on household face-to-face interview. All individuals aged 6 to 18 years who resided at least one year in a province of Iran and were able to communicate in Farsi language were included in the study. Exclusion criteria were the presence of any restrictions or disabilities that prohibited the participants or their parents from sufficiently completing the questionnaires, such as a severe developmental disorder, psychosis, learning disabilities, or an inability to read and speak Farsi language. People who were not willing to corporate were also excluded.

Sampling was carried out using a multistage cluster sampling method (cluster and stratified random sampling). IT It was first used to select children and adolescents from each of 31 provinces in Iran. Both urban and rural areas were selected randomly as a cluster sampling. In the next step, six individuals of each cluster head –three participants of each gender in different age groups (6 to 9, 10 to 14, 15 to 18) based on the classification of world health organization (World Health Organization, 2019)– were placed in each block. Hundred and seventy blocks were then, selected randomly according to postal code. The detailed protocol of the study can be seen in Mohammadi et al. (2017).

2.2. Instruments

2.2.1. Socio-demographic form

Socio-demographic data including age, gender, type of settlement, parental education and occupation, and their previous history of hospitalization at psychiatric wards were collected using questionnaire. The section of background information in the kiddie schedule for affective disorders and schizophrenia for school-age children-present and lifetime version (K-SADS-PL) was used to gather the sociodemographic characteristics. The two questions about education and occupation were added to this standardized questionnaire.

2.2.2. K-SADS-PL

K-SADS-PL is a semi-structure psychiatric interview based on DSM-IV. It takes 45–60 min to perform and provides diagnostic tool for psychiatric disorders including: mood disorders, anxiety disorders, psychotic disorder, behavioral disorders (e.g. attention deficit hyperactivity disorder, ODD, and conduct disorder), substance use, tic disorders, and elimination disorders (e.g. enuresis and encopresis). The inter-rater and test-retest reliability, negative (87%) and positive predictive value (100%) as well as consensual validity (Kappa score: 0.91) of the Farsi version of K-SADS-PL based on DSM-IV has been already assessed and reported to be adequate (Ghanizadeh et al., 2006). Excellent sensitivity (100%) and specificity (96.9%) were also reported (Ghanizadeh et al., 2006).

2.2.3. Millon clinical multiaxial inventory, third edition (MCMI-III)

In order to assess parental clinical personality patterns, severe personality pathologies, and specific DSM-IV clinical syndromes, we applied MCMI-III, which is a self-administrated psychological instrument. It contains 175 true/false questions and takes 25–30 min to perform (Dadfar and Lester, 2017). It can provide an assessment tool for both axis I clinical symptoms and axis II personality disorders. Validity and reliability of the Farsi version has been reported to be sufficient (Khwaja Mughi, 1993; Sharifi, 2002). The reliability by using test-retest found to be 0.61–0.79 in individuals with psychiatric disorders and 0.79–0.97 in individuals without mental conditions. Cronbach's alpha was reported to be 0.64–0.89 (Chegini et al., 2013).

MCMI-III includes 24 scales: eleven clinical personality pattern scales (e.g. schizoid (Cronbach's alpha: 0.68), avoidant (Cronbach's alpha: 0.73), depressive (Cronbach's alpha: 0.86), dependent (Cronbach's alpha: 0.78), histrionic (Cronbach's alpha: 0.65), narcissistic (Cronbach's alpha: 0.76), antisocial (Cronbach's alpha: 0.77), sadistic (Cronbach's alpha: 0.81), compulsive (Cronbach's alpha: 0.64), negativistic (Cronbach's alpha: 0.83), and masochistic (Cronbach's alpha: 0.81)), three severe personality pathology scales (e.g. schizotypal (Cronbach's alpha: 0.84), borderline (Cronbach's alpha: 0.87), and paranoid (Cronbach's alpha: 0.79)), seven clinical syndrome scales (e.g. anxiety (Cronbach's alpha: 0.80), somatoform (Cronbach's alpha: 0.78), bipolar (Cronbach's alpha: 0.78), dysthymia (Cronbach's alpha: 0.83), alcohol dependence (Cronbach's alpha: 0.75), drug dependence (Cronbach's alpha: 0.80), and post-traumatic stress disorder (Cronbach's alpha: 0.86)), three severe clinical syndrome scales (e.g. thought disorder (Cronbach's alpha: 0.87), major depression (Cronbach's alpha: 0.89), and delusional disorder (Cronbach's alpha: 0.79)), and three modifying scales including disclosure, desirability and debasement (Millon, 1977; Chegini et al., 2013).

2.3. Procedure

Data collection was carried out by trained clinical psychologists in a face-to-face conducted interview at participant's place of residence. Two hundred and fifty clinical psychologists with degrees of Master of Science were invited to participate in a 5-day workshop held by the chief investigator of the survey in each province. The workshops included presentations, roleplaying, interviews with real cases and discussions to cover all the essential skills for the psychologists until they could apply the diagnostic tools and interpret the findings.

For interview, the method of study was first explained to all involved and they were informed that participation was voluntary and they had the right to refuse to contribute to the study. Children and parents were independently interviewed using K-SADS-PL. Children less than 11 years were interviewed while at least one of their parents was present at the interview session. The psychologists, then, interpret the results and made a “summary rating” based on their “best estimate” judgment. Socio-demographic data were collected. MCMI-III was also used to assess the personality traits and psycho-pathologies of the biological parents of children.

2.4. Ethics

The parents provided written informed cc consent before initiation of the study. Informed consent was also obtained from adolescents aged above 15 years and assent was achieved from children less than this age. Data was collected from each family in privacy. The ethics committee of the National Institute for Medical Research Development approved the final protocol of the study (reference ethics code: IR.NIMAD.REC.1395.001).

2.5. Statistical analysis

Continuous quantitative variables including age and MCMI-III scales were reported as mean with standard deviation (SD) and 95% confidence interval (95%CI). Categorical variables (e.g. gender, age

Table 1
Distribution of social anxiety disorder based on socio-demographic characteristics.

Socio-demographic characteristics			Total	With social anxiety disorder		Regression logistic model	
			N(%)	N (%unweighted)	%weighted (95%CI)	Univariate OR(95%CI)	Multivariate OR(95%CI)
Gender	Boy		14,626(48.9)	282(1.9)	1.8(1.6–2.1)	Baseline	
	Girl		15,271(51.1)	303(2.0)	1.8(1.5–2.1)	0.98(0.79–1.21)	1.04(0.83–1.30)
Age	6–9		10,187(34.1)	174(1.7)	1.4(1.1–1.7)	Baseline	
	10–14		10,455(35.0)	200(1.9)	1.8(1.5–2.2)	1.29(0.99–1.70)	1.30(0.98–1.72)
	15–18		9255(31.0)	211(2.3)	2.2(1.9–2.6)	1.59(1.21–2.09)**	1.47(1.11–1.95)**
Types of settlement	Urban		24,932(83.4)	464(1.9)	1.8(1.6–2.0)	Baseline	
	Rural		4965(16.6)	121(2.4)	1.8(1.3–2.5)	0.99(0.70–1.40)	0.88(0.61–1.28)
Father educations	Illiterate		1299(4.5)	52(4.0)	3.5(2.4–5.1)	Baseline	
	primary school		4640(16.1)	98(2.1)	1.8(1.4–2.4)	0.53(0.32–0.87)*	0.61(0.35–1.06)
	Guidance & high school		6421(22.3)	139(2.2)	1.9(1.5–2.4)	0.55(0.35–0.87)*	0.63(0.36–1.11)
	Diploma		8377(29.1)	150(1.8)	1.7(1.4–2.1)	0.49(0.31–0.77)**	0.68(0.38–1.22)
	bachelor		6079(21.1)	94(1.5)	1.6(1.2–2.0)	0.45(0.28–0.73)**	0.61(0.32–1.15)
	MSc or higher		1976(6.9)	33(1.7)	1.8(1.2–2.7)	0.54(0.31–0.95)*	0.79(0.38–1.66)
	Missing		1105	19			
Mother educations	Illiterate		1701(5.8)	58(3.4)	2.8(1.9–4.1)	Baseline	
	primary school		5496(18.9)	120(2.2)	1.9(1.4–2.4)	0.67(0.42–1.07)	0.78(0.46–1.31)
	Guidance & high school		5676(19.5)	125(2.2)	2.3(1.8–2.8)	0.80(0.51–1.25)	0.96(0.56–1.65)
	Diploma		9645(33.2)	164(1.7)	1.5(1.2–1.8)	0.53(0.34–0.81)***	0.64(0.36–1.12)
	Bachelor		5586(19.2)	90(1.6)	1.7(1.3–2.2)	0.60(0.38–0.95)*	0.70(0.38–1.31)
	MSc or higher		991(3.4)	19(1.9)	1.5(0.9–2.7)	0.55(0.27–1.12)	0.59(0.25–1.39)
	Missing		802	9			
History of psychiatric hospitalization	Mother	Yes	90(0.3)	2(2.2)	3.1(0.9–1.1)		Baseline
		No	29,807(99.7)	583(2)	1.8(1.6–2.0)	0.58(0.14–2.45)	.79(0.18–3.43)
	Father	Yes	108(0.4)	6(5.6)	10.2(4.7–20.5)		Baseline
		No	29,786(99.6)	579(1.9)	1.8(1.6–2.0)	0.16(0.07–0.37)**	.17(0.07–0.41)**
Father Job	unemployed		990(3.4)	32(3.2)	2.1(1.2–3.6)	X^2 = 8.315, df = 7, *P*value = 0.306	
	Labourer		16,509(57.2)	323(2.0)	1.8(1.6–2.1)		
	Farmer		985(3.4)	22(2.2)	1.9(1.0–3.6)		
	businessman		1053(3.6)	20(1.9)	1.7(0.9–2.9)		
	Retired		1691(5.9)	45(2.7)	3.0(2.1–4.2)		
	public sector		6649(23)	111(1.7)	1.6(1.3–2.1)		
	Teacher		802(2.8)	9(1.1)	1.7(0.8–3.5)		
	faculty member		174(0.6)	5(2.9)	1.7(0.5–5.9)		
	Missing		1044	18			
Mother job	Labourer		999(3.4)	23(2.3)	2.4(1.5–3.9)	X^2 = 5.078, df = 7, Pvalue = 0.534	
	businessman		218(0.7)	6(2.8)	2.4(0.8–6.8)		
	housewife		24,890(85.2)	490(2.0)	1.8(1.6–2.0)		
	retired		220(0.8)	7(3.2)	3.2(1.3–8.0)		
	public sector		1634(5.6)	33(2.0)	1.4(0.9–2.3)		
	teacher		1166(4)	13(1.1)	1.3(0.7–2.5)		
	faculty member		75(0.3)	3(4.0)	2.1(0.4–11.1)		
	Missing		695	10			
Total			29,897(100)	585(2.0)	1.8(1.6–2.0)		

* : *P* Value < 0.05
** :*P* Value < 0.01

groups, place of residence, parental educations, and psychiatric hospitalization) and discrete quantitative variables (e.g. SAD prevalence and co-morbidities) were described in form of percentage with 95%CI. All the rates were adjusted based on the population of each province; using the Iranian population in the 2017 as the standard population. The odds ratio (OR) and multiple logistic regression analyses were used to assess which variables across diagnostic groups were statistically significant risk factors of SAD. SPSS version 20 (SPSS Incorporation, Chicago, USA) was used for statistical analyses and *P*-values less than 0.05 were considered significant.

3. Results

This was a cross-sectional national survey, carried out from October 14, 2016 to November 21, 2017. From the primary sample with 30,534 eligible candidates, 29,878 individuals aged 6 to 18 years took part in our study (response rate: 92%). The mean age of participants was 11.8 ± 3.8. (mean ± SD). The socio-demographic characteristics of participants were presented in Table 1.

A total number of 585 individuals including 282 boys and 303 girls were diagnosed with SAD based on K-SADS-PL criteria. The weighted lifetime prevalence rate of 1.8% was estimated for this event (Table 1). Multivariate analysis of the socio-demographic characteristics revealed that SAD was significantly associated with aging (Fig. 1). The odds of this condition among older adolescents (15 to 18 years) were statistically higher than individuals aged 6 to 9 years (OR: 1.47; 95%CI: 1.11–1.95). History of previous psychiatric hospitalization in father was also associated with higher odds of SAD (OR: 2.96; 95%CI: 1.29–6.79). Our study showed lower prevalence of SAD among individuals with higher parental education. It was, however, not significant using multivariate analysis (Table 1). Other characteristics including gender, type of settlement, parental jobs, and history of maternal psychiatric hospitalization were reported to have no significant impact on the odds of SAD among children and adolescents (Table 1).

Our data indicated that about 70 percent of individuals with the diagnosis of SAD had at least one psychiatric co-morbid condition (Table 2). It was observed that 145 individuals had one co-morbidity while the rest (233 participants) were diagnosed with >1 co-morbidities. Other anxiety disorders (54.9%) were the most common co-occurred events in people with SAD. GAD (26%), separation anxiety

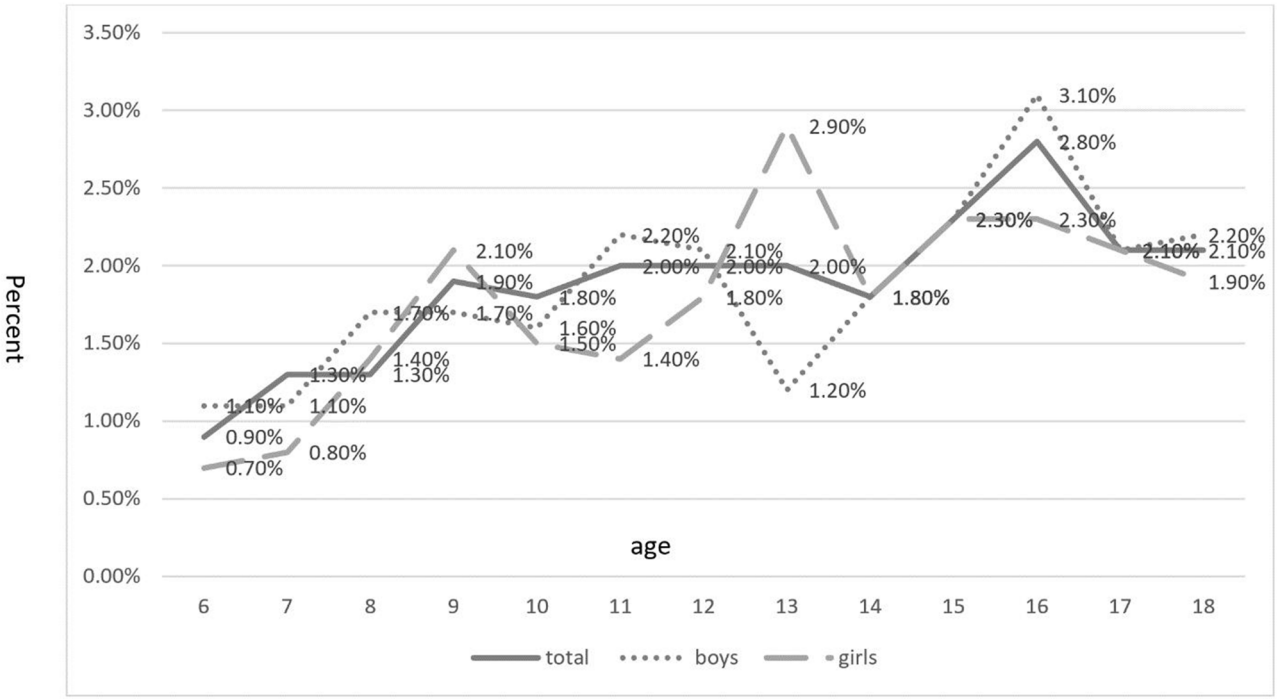

Fig. 1. Rates of social anxiety disorder by age trends and sex groups.

disorders (24.5%), and SP (18%) were the most frequent subtypes (Fig. 2). Behavioral (29.5%) (e.g. ODD) and mood disorders (14.5%) (e.g. depressive disorders) were other frequent psychiatric conditions observed in children and adolescents with SAD.

The effects of sex and age groups on the odds of co-morbid disorders were presented in Table 3. Mood disorders were significantly more prevalent among individuals aged 15 to 18 years compared to 6 to 9 year-old-participants (OR: 3.78; 95%CI: 1.38–10.37). Elimination disorders were, however, less common in adolescents aged 15 to 18 years (OR: 0.13; 95%CI: 0.04–0.045). The differences in the odds of co-morbidities among males and females were not statistically significant.

The data on the effects of parental personality patterns and pathologies on the odds of SAD among their children and adolescents showed that based on MCMI-III, higher means of persistent depressive disorder (OR: 1.009; 95%CI: 1.000–1.018) and melancholic personality trait (OR: 1.007; 95%CI: 1.001–1.014) in mothers were statistically

Table 2
Rates of psychiatric co-morbidities in children and adolescents with social anxiety disorder based on sex and age groups.

Psychiatric disorders	Total	Sex: Male (1), Female (2)			Age group: 6–9(1), 10–14(2), 15–18(3)		
	Weighted (95%CI)		Weighted (95%CI)	OR (95%CI)		Weighted (95%CI)	OR (95%CI)
Mood disorders	14.5(11.1–18.6)	1	11.9(7.7–17.8)	Base line	1	5.9(2.5–13.0)	Base line
		2	19.1(13.8–25.9)	1.79(0.96–3.35)	2	18.0(12.2–25.8)	3.44(1.26–9.43)*
					3	19.3(13.1–27.5)	3.78(1.38–10.37)**
Psychosis	2.7(1.4–5.0)	1	2.4(0.9–6.0)	Base line	1	–	Base line
		2	2.5(1.0–6.2)	1.02(0.26–3.97)	2	1.6(0.5–5.8)	4.92(0.08–29.47)
					3	5.8(2.9–11.6)	19.24(0.39–97.15)
anxiety disorders	54.9(49.6–60.1)	1	50.6(43.0–58.3)	Base line	1	56.6(45.9–66.8)	Base line
		2	64.1(56.4–80.0)	1.76(1.13–2.74)	2	66.1(57.4–73.9)	1.49(0.84–2.63)
					3	49.1(40.2–58.1)	0.74(0.42–1.31)
Behavioral disorders	29.5(24.9–34.6)	1	33.9(27.2–41.4)	Base line	1	33.7(24.7–44.0)	Base line
		2	26.4(20.2–33.6)	.69(0.43–1.12)	2	26.8(19.8–35.3)	0.70(0.39–1.27)
					3	31.1(23.5–39.9)	0.86(0.48–1.54)
Elimination disorders	8.6(6.0–12.0)	1	8.4(5.1–13.6)	Base line	1	17.1(10.6–26.2)	Base line
		2	9.3(5.7–14.7)	1.07(0.50–2.30)	2	9.0(5.1–15.4)	0.48(0.21–1.11)
					3	2.5(0.9–7.2)	0.13(0.04–0.45)**
Eating disorders	2.4(1.2–4.6)	1	3.1(1.3–6.9)	Base line	1	3.5(1.2–9.8)	Base line
		2	1.9(0.6–5.4)	.51(0.11–2.34)	2	4.1(1.8–9.2)	1.42(0.31–6.57)
					3	–	–
Smoking	2.7(1.4–4.9)	1	1.8(0.6–5.1)	Base line	1	2.2(0.6–7.6)	Base line
		2	3.6(1.6–7.5)	1.67(0.43–6.48)	2	.8(0.1–4.4)	0.42(0.04–4.96)
					3	4.9(2.3–10.2)	2.79(0.51–15.27)
Total comorbid disorders	69.9(64.8–74.6)	1	69.1(61.7–75.4)	Base line	1	77.3(67.5–84.8)	Base line
		2	76.2(69.2–82.1)	1.42(0.87–2.32)	2	74.2(65.8–81.1)	0.86(0.45–1.63)
					3	67.8(58.8–75.7)	0.62(0.33–1.16)

Comorbid disorders number: 0 = 205*n*, 1 = 147*n*, 2 and more = 233*n*.
* : *P* Value < 0.05.
** : *P* Value < 0.01.

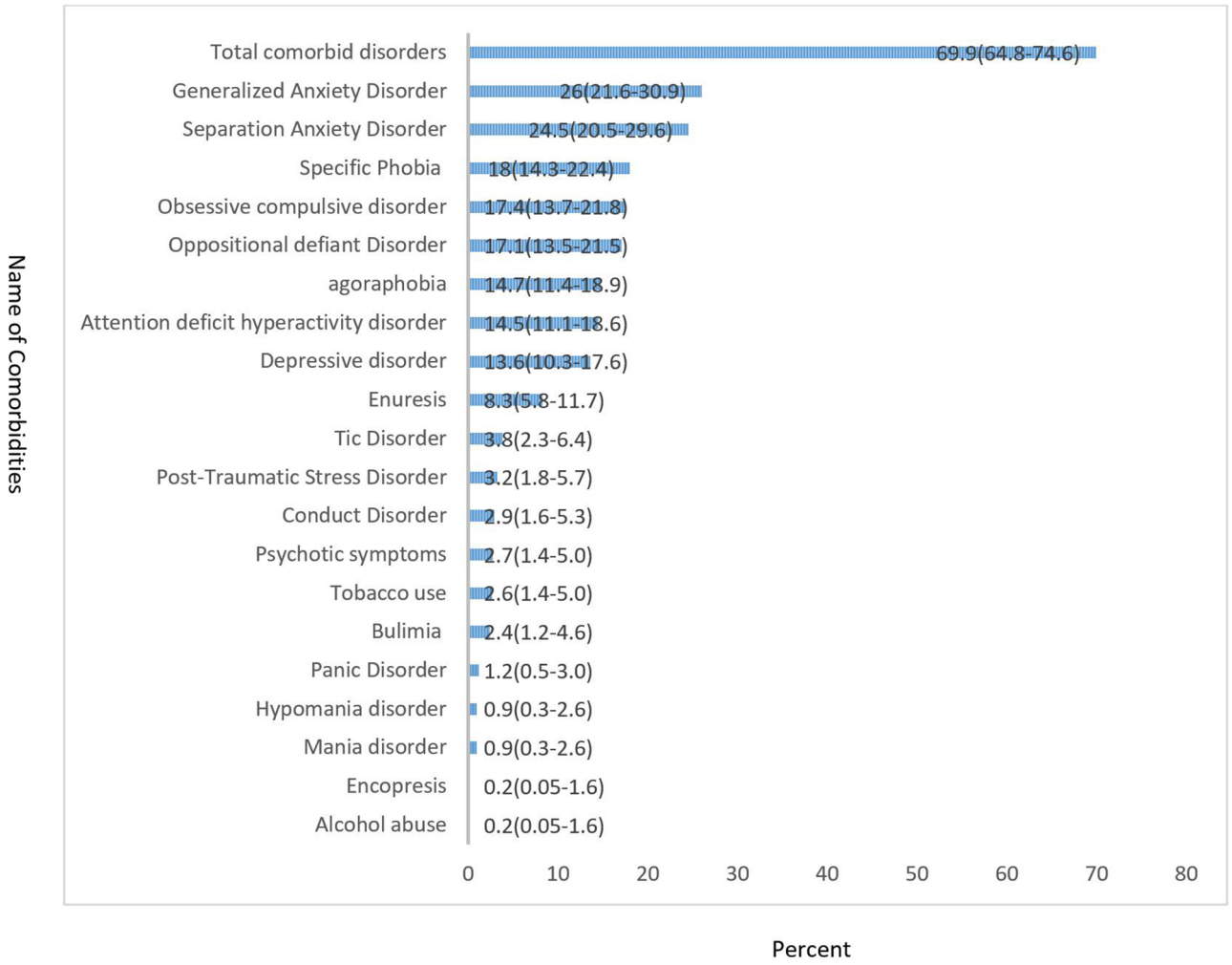

Fig. 2. Rates of comorbid conditions in social anxiety disorder.

associated with higher rates of SAD in their children (Table 3). Furthermore, higher means of schizophrenia spectrum (OR: 1.014; 95%CI: 1.001–1.1.027) and anxiety (OR: 1.010; 95%CI: 1.010–1.021) in fathers were statistically associated with higher rates of SAD in their children (Table 4).

4. Discussion

4.1. Summary of results

To our knowledge, this is the first national survey assessed the prevalence, risk factors, and co-morbidities of SAD among Iranian children and adolescents. Our analysis revealed that the lifetime prevalence of this condition was about 2%. SAD is more common among older adolescents. HHgH History of psychiatric hospitalization in father was shown to be a risk factor of this event. Other anxiety disorders, behavioral, and mood disorders were the most prevalent co-morbid conditions in pediatric population with SAD. Among parental MCMI-III scales, maternal melancholic and persistent depressive disorder as well as paternal anxiety and schizophrenia spectrum disorder were observed to be risk factors of SAD on statistical standpoint but no clinical significance can be considered due to the low reported ORs.

4.2. Previous studies

4.2.1. Prevalence of social anxiety disorder

The reported prevalence of SAD in our survey was lower than most of the previous studies performed in children and adolescents of Western countries including Australia (2.3%) (Spence et al., 2018), Puerto Rico (2.5%) (Canino et al., 2004), Finland (3.2%) (Ranta et al., 2009), Chile (3.7%) (Vicente et al., 2012), Spain (4%) (Canals et al., 2019), Sweden (4.4%) (Tillfors et al., 2009), the United States (6.6%) (Knappe et al., 2011), and Brazil (11.6%) (Baptista et al., 2012). A nationwide study in the United States with over 10,000 participants aged 13 to 18 years reported that about 9% of individuals were diagnosed with SAD (Merikangas et al., 2010). An international survey with around 19,000 participants aged over 15 years from the United Kingdom, Germany, Italy, Spain and Portugal also revealed a prevalence point of 4.4% for SAD (Ohayon and Schatzberg, 2010). The discrepancies in results can be due to the geographical and cultural factors. It seems that people of Eastern countries are at lower risk of SAD than individuals of Western countries (Wong et al., 2019). The differences in the age ranges in studies can also be another reason as increasing age can lead to higher SAD prevalence rate. The prevalence of SAD among children and adolescents of Qatar as a neighboring country of Iran was also higher than our observed results (12.7%) (Bener et al., 2011). We found two studies with lower SAD prevalence rates than ours (Essau et al., 1999; Leung et al., 2008). A population-based study with 1035 children and adolescents in Germany reported the SAD prevalence of 1.6% (Essau et al., 1999) and another study in China with 541 adolescents showed that the prevalence of SAD was lower than 1% (Leung et al., 2008). Previous studies at subnational level of Iran indicated that the prevalence rates of SAD varied from 0.2% in Hamedan province to over 20% in Abhar city

Table 3
The odds of social anxiety disorder in children and adolescents based on maternal psychiatric disorders.

		Mean (SD)		Univariate	Multivariate
		With Social phobia	Without Social phobia	OR (95%CI)	OR (95%CI)
Personality scales	Schizoid	27.27(23.04)	21.11(21.75)	1.012(1.007–1.06)**	1.004(0.996–1.012)
	Avoidance	24.98(23.94)	20.05(19.99)	1.011(1.006–1.016)**	0.997(0.987–1.007)
	Melancholic	27.64(28.29)	37.81(32.23)	1.011(1.008–1.015)**	1.007(1.001–1.014)*
	Dependent	21.79(21.31)	16.28(16.54)	1.015(1.010–1.020)**	1.005(0.996–1.014)
	Histrionic	61.11(21.57)	60.53(22.39)	.999(0.994–1.004)	1.003(0.996–1.010)
	Narcissistic	39.99(19.43)	39.74(18.44)	1.001(0.995–1.007)	0.996(0.988–1.004)
	Anti-social	26.82(21.01)	23.27(19.72)	1.008(1.003–1.014)**	0.995(0.986–1.004)
	Sadistic	27.54(20.19)	22.42(18.62)	1.013(1.008–1.019)**	1.002(0.993–1.012)
	Obsessive compulsive	46.28(24.74)	45.33(24.43)	1.002(0.997–1.006)	0.998(0.993–1.003)
	Negativistic	31.72(25.01)	24.23(22.28)	1.013(1.009–1.018)**	1.002(0.993–1.012)
	Masochistic	23.83(21.67)	18.37(18.58)	1.013(1.008–1.018)**	0.999(0.989–1.009)
	Schizotypal	23.97(20.89)	19.07(18.28)	1.013(1.007–1.018)**	0.996(0.985–1.007)
	Borderline	27.53(19.83)	22.39(18.25)	1.014(1.008–1.020)**	0.999(0.988–1.010)
	Paranoid	35.69(22.47)	28.92(21.59)	1.014(1.009–1.019)**	1.008(0.999–1.017)
Clinical syndrome	Anxiety	30.64(23.24)	24.28(22.07)	1.012(1.007–1.017)**	1.005(0.996–1.013)
	Somatoform	28.90(25.91)	21.98(22.91)	1.012(1.007–1.016)**	1.009(0.999–1.019)
	Bipolar Spectrum	22.94(22.11)	17.39(18.83)	1.013(1.008–1.019)**	1.007(0.998–1.015)
	Persistent Depression Disorder	22.78(25.67)	15.80(20.95)	1.013(1.008–1.017)**	1.009(1.000–1.018)*
	Alcohol dependence	19.76(12.74)	17.42(12.11)	1.014(1.006–1.022)**	1.001(0.987–1.015)
	Drug dependence	16.44(13.29)	15.10(13.15)	1.007(0.999–1.015)	0.988(0.976–1.001)
	Post-traumatic stress disorder	19.21(22.95)	14.24(19.56)	1.011(1.006–1.016)**	0.994(0.984–1.004)
	Schizophrenia Spectrum	30.82(22.54)	24.25(21.09)	1.014(1.009–1.019)**	1.005(0.995–1.016)
	Major Depression Disorder	26.15(22.88)	21.01(20.93)	1.011(1.006–1.016)	0.987(0.975–0.999)*
	Delusional disorder	25.02(20.07)	19.87(18.47)	1.014(1.008–1.019)**	1.006(0.997–1.015)

* : P Value < 0.05.
** :P Value < 0.01.

Table 4
The odds of social anxiety disorder in children and adolescents based on paternal psychiatric disorders.

		Mean (SD)		Univariate	Multivariate
		With social phobia	Without social phobia	OR (CI 95%)	OR (CI 95%)
Personality scales	Schizoid	29.74(23.35)	21.80(21.52)	1.015(1.009–1.021)**	1.005(0.995–1.016)
	Avoidance	31.11(21.83)	24.91(19.60)	1.015(1.008–1.022)**	0.995(0.982–1.009)
	Melancholic	34.58(28.72)	24.63(25.15)	1.014(1.008–1.019)**	1.000(0.989–1.011)
	Dependent	22.95(21.38)	16.22(17.35)	1.017(1.010–1.023)**	1.003(0.992–1.014)
	Histrionic	64.06(23.50)	63.97(22.61)	1.000(0.994–1.007)	1.002(0.992–1.011)
	Narcissistic	44.04(17.89)	42.05(16.64)	1.007(0.998–1.016)	0.998(0.986–1.010)
	Anti-social	26.14(20.96)	20.91(19.58)	1.012(1.005–1.019)**	0.994(0.981–1.006)
	Sadistic	30.32(20.84)	23.62(19.22)	1.016(1.009–1.023)**	1.004(0.991–1.017)
	Obsessive compulsive	55.62(21.66)	52.72(21.85)	1.006(0.999–1.013)	1.005(0.997–1.014)
	Negativistic	35.50(25.42)	25.81(23.36)	1.016(1.010–1.022)**	1.009(0.997–1.021)
	Masochistic	25.93(23.00)	17.85(20.12)	1.016(1.010–1.023)**	1.004(0.992–1.016)
	Schizotypal	26.55(22.03)	18.48(19.56)	1.018(1.011–1.024)**	1.011(0.997–1.025)
	Borderline	30.26(20.79)	22.51(19.92)	1.018(1.011–1.024)**	1.003(0.989–1.017)
	Paranoid	32.78(22.09)	25.65(22.00)	1.014(1.007–1.020)**	0.993(0.981–1.006)
Clinical syndrome	Anxiety	33.10(26.24)	23.48(23.65)	1.015(1.010–1.021)**	1.010(1.001–1.021)*
	Somatoform	27.00(25.36)	19.74(23.36)	1.012(1.006–1.018)**	0.997(0.985–1.009)
	Bipolar Spectrum	20.77(23.38)	13.97(20.37)	1.013(1.007–1.019)**	1.003(0.993–1.013)
	Persistent Depression Disorder	26.01(23.37)	19.32(20.77)	1.013(1.007–1.020)**	0.998(0.985–1.011)
	Alcohol dependence	19.47(18.64)	15.37(17.25)	1.012(1.004–1.019)**	0.994(0.981–1.006)
	Drug dependence	22.48(20.90)	17.74(18.20)	1.012(1.005–1.019)**	1.004(0.993–1.014)
	PTSD	19.77(23.09)	13.51(20.49)	1.012(1.006–1.018)**	0.992(0.980–1.005)
	Schizophrenia Spectrum	35.02(24.01)	25.57(22.37)	1.017(1.011–1.024)**	1.014(1.001–1.027)*
	Major Depression Disorder	28.32(24.06)	20.57(22.23)	1.014(1.008–1.020)**	1.007(0.994–1.021)
	Delusional disorder	22.12(20.26)	16.81(18.63)	1.013(1.006–1.020)**	0.998(0.987–1.009)

* : P Value < 0.05.
** : P Value < 0.01.

(Ahmadpanah et al., 2018; Jalali and Pourahmadi, 2012; Mozafari et al., 2009; Hajiamini et al., 2012). Methodological differences can somewhat justify the discrepancies in results. Sample size, sampling methods, age ranges of study population, as well as diagnostic tools and their thresholds can all change the results of studies. It appears that estimated prevalence rate of any disorder based on World Health Organization Composite International Diagnostic Interview (CIDI) is over 8% higher than the estimated prevalence rate based on K-SADS-PL used in our study (Kessler et al., 2009). Further surveys are needed to have a better perspective about the prevalence of SAD among different nations.

4.2.2. Demographic associations and risk factors

This survey showed that SAD prevalence was significantly higher among older adolescents. This is in line with most prior studies conducted in Europe (Ranta et al., 2009; Essau et al., 1999; Canals et al.,

2019) and the United States (Merikangas et al., 2010). It can be due to the transitional stage of physical and psychological development in adolescence that starts from puberty period until adulthood. The changes in physical appearance and emotions can lead to SAD in this population. Noted, few studies conducted in Sweden and Chile revealed no significant association between age and SAD prevalence (Tillfors et al., 2009).

Our study showed that no specific gender significantly increased the odds of SAD. Most previous studies, however, revealed that females were at higher risk of SAD occurrence than males (Canino et al., 2004; Bener et al., 2011; Abbo et al., 2013; Spence et al., 2018; Vicente et al., 2012; Baptista et al., 2012; Merikangas et al., 2010). In line with our study, surveys in Finland (Ranta et al., 2009) and Germany (Essau et al., 1999) and other studies conducted in Iran (Farshidfar et al., 2019; Hajiamini et al., 2012) reported no significant association between gender and SAD prevalence. Possible explanations for discrepancies can be methodological differences as well as the cultural and societal diversity across different countries. Our results also demonstrated that there is no significant difference in SAD prevalence between people of urban and rural areas. This is in line with multiple previous studies (Canino et al., 2004; Merikangas et al., 2010; Magee et al., 1996). Few studies, however, detected a higher prevalence of psychiatric disorders in urban areas (Tillfors et al., 2009; Vega et al., 1998; Kringlen et al., 2001). A population-based study in Hamedan province of Iran reported a higher prevalence of anxiety disorders including SAD in children of the rural places (Jalali and Pourahmadi, 2012). Further studies are required to resolve our ambiguities. Our data also showed that parental jobs and education had no significant effect on the odds of SAD which has been reported in prior studies too (Abbo et al., 2013; Spence et al., 2018).

The history of paternal psychiatric hospitalization was found to be a risk factor of SAD in children and adolescents. Some parental clinical syndromes and personality traits were also observed to be associated with this event. The risk factors and triggers of SAD were assessed in multiple prior studies. Genetic and environmental factors were both identified to play important roles in SAD development (Bandelow et al., 2004; Hudson and Rapee, 2000). Substantial number of surveys investigated the role of heritability in SAD occurrence. It was reported that children of parents with SAD were more susceptible to experience this condition (Elizabeth et al., 2006) and this can be due to both genetic and shared environmental triggers (Spence and Rapee, 2016). A recent meta-analysis of 13 cohort studies with twin data reported that genetic and non-shared environmental factors were the most prominent contributors in SAD development among youths and genetic contribution in adults was half than that in younger individuals (Sciani et al., 2014). To date, no specific gene in association with SAD was identified and future studies are needed in this area.

4.2.3. Co-morbid conditions

Over two third of our participants with SAD had at least one psychiatric co-morbidity. High prevalence of other anxiety events (Ranta et al., 2009; Essau et al., 1999; Knappe et al., 2011; Spence et al., 2018; Wittchen et al., 1999), mood disorders (Ranta et al., 2009; Essau et al., 1999; Ohayon and Schatzberg, 2010; Wittchen et al., 1999), behavioral disorders (Knappe et al., 2011), and substance use (Ranta et al., 2009; Knappe et al., 2011; Wittchen et al., 1999) in people with SAD was described in prior studies. Impaired social interactions and educational attainment in children with SAD can increase the risk of other mental disorders. Shared pathophysiological mechanisms may also justify this association. It has been recognized that people with psychiatric disorders are at increased risk of developing other mental conditions (Lai et al., 2015; Buckley et al., 2008). The exact underlying mechanisms are, however, not clear and evidence is lacking in this area.

4.3. Strengths

The IRCAP study was the first epidemiological survey of psychiatric disorders with a large sample of children and adolescents from all provinces of Iran and the presented results can be generalized to other children and adolescents of country. Face-to-face household interview using semi-structured questionnaire (K-SADS) is other strength of the study and is more acceptable than using self-reported questionnaires.

4.4. Limitations

Several limitations apply when interpreting the findings. The IRCAP did not survey the detained or homeless children and adolescents. The cross-sectional analysis does not enable analyses of possible causal associations. Lacking control group and follow-up periods were other major limitations that should be resolved in future studies. As SAD cannot be objectively assessed, the outcomes of the study were reliant on reports from children or their parents which could lead to information bias. This study was carried out using the Farsi version of K-SADS-PL based on DSM-IV. There have been multiple important changes between DSM-IV and DSM-V in definition and diagnosis of SAD that can affect our reported prevalence (Crome et al., 2015). No data on validity and reliability of the Farsi version of K-SADS-PL based on DSM-V are yet available.

4.5. Future directions

Conduction of national prospective cohort studies will provide abundant data about this underestimated mental condition. Long follow-up periods of the participants can determine the process of event and identify if SAD can affect the quality of lives of individuals in later years.

Current therapies in people with SAD had no significant efficacy and the pathophysiology of condition remained unknown. The identification of SAD demographic associations and co-morbid conditions can have clinical implications. Trying to understand the pathophysiologic links between SAD and its co-morbidities may help to find new treatments for this event.

5. Conclusion

Our findings revealed that SAD is an important public health issue and can be detected early in life. Clinicians and researchers need to continue studying this condition at all levels and in all developmental periods.

Funding sources

This work was supported by the National Institute for Medical Research and Development(grant number 940906), who had no role in study design, data collection, analysis, or interpretation of data, in the writing of the report, or in the decision to submit the article for publication.

Author statement

All persons who meet authorship criteria are listed as authors, and all authors certify that they have participated sufficiently in the work to take public responsibility for the content, including participation in the concept, design, analysis, writing, or revision of the manuscript. Furthermore, each author certifies that this material or similar material has not been and will not be submitted to or published in any other publication before its appearance in the *Journal of Affective Disorders*

CRediT authorship contribution statement

Mohammad Reza Mohammadi: Conceptualization, Formal analysis, Writing - review & editing. **Mona Salehi:** Conceptualization, Formal analysis, Writing - original draft. **Ali Khaleghi:** Data curation, Formal analysis, Validation. **Zahra Hooshyari:** Data curation, Formal analysis, Validation. **Seyed Ali Mostafavi:** Formal analysis, Validation. **Nastaran Ahmadi:** Data curation. **Seyed Kaveh Hojjat:** Formal analysis, Validation. **Parvin Safavi:** Data curation. **Man Amanat:** Conceptualization, Formal analysis, Writing - original draft, Writing - review & editing.

Declaration of Competing Interest

None.

Acknowledgements

We are grateful to all participants and their parents for partaking in this study.

References

Abbo, C., Kinyanda, E., Kizza, R.B., Levin, J., Ndyanabangi, S., Stein, D.J., 2013. Prevalence, comorbidity and predictors of anxiety disorders in children and adolescents in rural north-eastern Uganda. Child Adolesc. Psychiatry Ment. Health 7 (1), 21.
Ahmadpanah, M., Nazaribadie, M., Mohammadi, M.R., Hooshyari, Z., Alavi, S.S., Ghaleiha, A., et al., 2018. The prevalence of psychiatric disorders in children and adolescents in hamadan province, west of Iran. J. Res. Health Sci. 18 (4).
American Psychiatric Association, 2013. Diagnostic and Statistical Manual of Mental Disorders, fifth edition. American Psychiatric Association, Arlington, VA.
Bandelow, B., Torrente, A.C., Wedekind, D., Broocks, A., Hajak, G., Rüther, E., 2004. Early traumatic life events, parental rearing styles, family history of mental disorders, and birth risk factors in patients with social anxiety disorder. Eur. Arch. Psychiatry Clin. Neurosci. 254 (6), 397–405.
Baptista, C.A., Loureiro, S.R., de Lima Osório, F., Zuardi, A.W., Magalhães, P.V., Kapczinski, F., et al., 2012. Social phobia in Brazilian university students: prevalence, under-recognition and academic impairment in women. J. Affect. Disord. 136 (3), 857–861.
Bener, A., Ghuloum, S., Dafeeah, E., 2011. Prevalence of common phobias and their socio-demographic correlates in children and adolescents in a traditional developing society. Afr. J. Psychiatry (Johannesbg) 14 (2).
Buckley, P.F., Miller, B.J., Lehrer, D.S., Castle, D.J., 2008. Psychiatric comorbidities and schizophrenia. Schizophr. Bull. 35 (2), 383–402.
Canals, J., Voltas, N., Hernandez-Martinez, C., Cosi, S., Arija, V., 2019. Prevalence of DSM-5 anxiety disorders, comorbidity, and persistence of symptoms in Spanish early adolescents. Eur. Child Adolesc. Psychiatry 28 (1), 131–143.
Canino, G., Shrout, P.E., Rubio-Stipec, M., Bird, H.R., Bravo, M., Ramírez, R., et al., 2004. The dsm-iv rates of child and adolescent disordersin puerto rico: prevalence, correlates, service use, and the effects of impairment. Arch. Gen. Psychiatry 61 (1), 85–93.
Chegini, M., Delavar, A., Garrayi, B., 2013. Psychometric characteristics of millon clinical multiaxial inventory-iii. J. Mod. Psychol. Res. (JMPR) 8 (29), 135–162.
Crome, E., Grove, R., Baillie, A.J., Sunderland, M., Teesson, M., Slade, T., 2015. DSM-IV and DSM-5 social anxiety disorder in the Australian community. Aust. N.Z. J. Psychiatry 49 (3), 227–235.
Dadfar, M., Lester, D., 2017. Prevalence of personality disorders and clinical syndromes using the millon clinical multiaxial inventory iii (MCMI-III) in an Iranian clinical sample. IJBECS 3, 36–47.
Elizabeth, J., King, N., Ollendick, T.H., Gullone, E., Tonge, B., Watson, S., et al., 2006. Social anxiety disorder in children and youth: a research update on aetiological factors. Couns. Psychol. Q. 19 (2), 151–163.
Essau, C.A., Conradt, J., Petermann, F., 1999. Frequency and comorbidity of social phobia and social fears in adolescents. Behav. Res. Ther. 37 (9), 831–843.
Farshidfar, Z., Dastjerdi, R., Mohammadi, M.R., Alavi, S., Ahmadi, A., 2019. The prevalence of psychiatric disorders among children and adolescents in Southern Khorasan Province, Iran. Mod. Care J, 16 (2).
Ghanizadeh, A., Mohammadi, M.R., Yazdanshenas, A., 2006. Psychometric properties of the Farsi translation of the kiddie schedule for affective disorders and schizophrenia-present and lifetime version. BMC Psychiatry 6 (1), 10.
Hajiamini, Z., Mohamadi, A., Ebadi, A., Fathi-Ashtiani, A., Tavousi, M., Montazeri, A., 2012. The School Anxiety Scale-Teacher Report (SAS-TR): translation and psychometric properties of the Iranian version. BMC Psychiatry 12 (1), 82.
Heimberg, R.G., Hofmann, S.G., Liebowitz, M.R., Schneier, F.R., Smits, J.A., Stein, M.B., et al., 2014. Social anxiety disorder in DSM-5. Depress. Anxiety 31 (6), 472–479.
Hudson, J.L., Rapee, R.M., 2000. The origins of social phobia. Behav. Modif. 24 (1), 102–129.
Jalali, M., Pourahmadi, E., 2012. P-132-Prevalence of anxiety disorders among 10–14 years old children in Gorgan. Eur. Psychiatry 27 (1).
Kessler, R.C., Avenevoli, S., Green, J., Gruber, M.J., Guyer, M., He, Y., et al., 2009. National comorbidity survey replication adolescent supplement (NCS-A): III. concordance of dsm-iv/cidi diagnoses with clinical reassessments. J. Am. Acad. Child Adolesc. Psychiatry 48 (4), 386–399.
Kessler, R.C., McGonagle, K.A., Zhao, S., Nelson, C.B., Hughes, M., Eshleman, S., et al., 1994. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Survey. Arch. Gen. Psychiatry 51 (1), 8–19.
Mughi, Khwaja, 1993. Preliminary preparation of the Persian form of millon'sclinical multiaxial inventory-II. In: Tehran. MSc Thesis, In Persian. Tehran Psychiatric Institute.
Knappe, S., Beesdo-Baum, K., Fehm, L., Stein, M.B., Lieb, R., Wittchen, H.U., 2011. Social fear and social phobia types among community youth: differential clinical features and vulnerability factors. J. Psychiatr. Res. 45 (1), 111–120.
Kringlen, E., Torgersen, S., Cramer, V., 2001. A Norwegian psychiatric epidemiological study. Am. J. Psychiatry 158 (7), 1091–1098.
Lai, H.M.X., Cleary, M., Sitharthan, T., Hunt, G.E., 2015. Prevalence of comorbid substance use, anxiety and mood disorders in epidemiological surveys, 1990–2014: a systematic review and meta-analysis. Drug Alcohol Depend. 154, 1–13.
Leung, P.W., Hung, S.-f., Ho, T.-p., Lee, C.-c., Liu, W.-s., Tang, C.-p., et al., 2008. Prevalence of DSM-IV disorders in Chinese adolescents and the effects of an impairment criterion. Eur. Child Adolesc. Psychiatry 17 (7), 452–461.
Magee, W.J., Eaton, W.W., Wittchen, H.-.U., McGonagle, K.A., Kessler, R.C., 1996. Agoraphobia, simple phobia, and social phobia in the National Comorbidity Survey. Arch. Gen. Psychiatry 53 (2), 159–168.
Merikangas, K.R., He, J.-p., Burstein, M., Swanson, S.A., Avenevoli, S., Cui, L., et al., 2010. Lifetime prevalence of mental disorders in US adolescents: results from the National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). J. Am. Acad. Child Adoles. Psychiatry 49 (10), 980–989.
Millon, T. (1977). Millon multiaxial clinical inventory manual. Minneapolis, MN, National Computer Systems.
Mohammadi, M.R., Ahmadi, N., Kamali, K., Khaleghi, A., Ahmadi, A., 2017. Epidemiology of psychiatric disorders in iranian children and adolescents (IRCAP) and its relationship with social capital, life style and parents' personality disorders: study protocol. Iran. J. Psychiatry 12 (1), 66.
Mozafari, M., Ghanizadeh, A., Ashkani, H., Firouzabadi, A., Alishahi, M., Dehbozorgi, G., 2009. Prevalence of deppression and anxiety disorders in in children of veterans and control group in Shiraz city. Qom Univ. Med. Sci. J. 3, 19–24.
Ohayon, M.M., Schatzberg, A.F., 2010. Social phobia and depression: prevalence and comorbidity. J. Psychosom. Res. 68 (3), 235–243.
Ranta, K., Kaltiala-Heino, R., Rantanen, P., Marttunen, M., 2009. Social phobia in finnish general adolescent population: prevalence, comorbidity, individual and family correlates, and service use. Depress. Anxiety 26 (6), 528–536.
Scaini, S., Belotti, R., Ogliari, A., 2014. Genetic and environmental contributions to social anxiety across different ages: a meta-analytic approach to twin data. J. Anxiety Disord. 28 (7), 650–656.
Sharifi, A., 2002. Normalization of Millon Clinical Multiaxial Inventory-III. University of Isfahan Isfahan city. MSc Thesis].
Spence, S.H., Rapee, R.M., 2016. The etiology of social anxiety disorder: an evidence-based model. Behav. Res. Ther. 86, 50–67.
Spence, S.H., Zubrick, S.R., Lawrence, D., 2018. A profile of social, separation and generalized anxiety disorders in an Australian nationally representative sample of children and adolescents: prevalence, comorbidity and correlates. Aust. N. Z. J. Psychiatry 52 (5), 446–460.
Stein, M.B., Stein, D.J., 2008. Social anxiety disorder. Lancet 371 (9618), 1115–1125.
Tillfors, M., Furmark, T., Bohlin, G., Andersson, G., Svedin, C.G., 2009. Social phobia in Swedish adolescents. Soc. Psychiatry Psychiatr. Epidemiol. 44 (1), 1.
Vega, W.A., Kolody, B., Aguilar-Gaxiola, S., Alderete, E., Catalano, R., Caraveo-Anduaga, J., 1998. Lifetime prevalence of DSM-III-R psychiatric disorders among urban and rural Mexican Americans in California. Arch. Gen. Psychiatry 55 (9), 771–778.
Vicente, B., Saldivia, S., De La Barra, F., Kohn, R., Pihan, R., Valdivia, M., et al., 2012. Prevalence of child and adolescent mental disorders in Chile: a community epidemiological study. J. Child Psychol. Psychiatry 53 (10), 1026–1035.
Weiller, E., Bisserbe, J.C., Boyer, P., Lepine, J.P., Lecrubier, Y., 1996. Social phobia in general health care: an unrecognised undertreated disabling disorder. Br. J. Psychiatry 168 (2), 169–174.
Wittchen, H.U., Stein, M.B., Kessler, R.C., 1999. Social fears and social phobia in a community sample of adolescents and young adults: prevalence, risk factors and co-morbidity. Psychol. Med. 29 (2), 309–323.
Wong, Q.J., Chen, J., Gregory, B., Baillie, A.J., Nagata, T., Furukawa, T.A., et al., 2019. Measurement equivalence of the Social Interaction Anxiety Scale (SIAS) and Social Phobia Scale (SPS) across individuals with social anxiety disorder from Japanese and Australian sociocultural contexts. J. Affect. Disord. 243, 165–174.
World Health Organization. (2019). Norway. Retrieved from: www.who.int/child_adolescent_health/documents/.../9241591269_op_handout.pdf.